the university of north carolina at charlotte

1982-83 catalog

Correspondence Directory

If, after reading this Catalog, you have further questions, or wish to make specific inquiries about the programs of, or admission to, the University of North Carolina at Charlotte, please look below to find the proper office to contact. Address correspondence to any of the offices in care of:

The University of North Carolina at Charlotte
UNCC Station
Charlotte, North Carolina 28223

ADMISSIONS

If you need information on admissions policies, application forms, or wish to make an appointment for an interview, please contact one of the following:

Undergraduate Admissions Office
AC 704/597-2211

Graduate Admissions Office
AC 704/597-2211

STUDENT FINANCIAL AID

If you need information on scholarships, work study grants or loans, please contact:

Director of Student Financial Aid
AC 704/597-2461

CAMPUS HOUSING

If you have questions concerning housing on campus, please contact:

Director of Residence Life
AC 704/597-2585

SUMMER SESSION

If you need information about summer course offerings, please contact:

Office of Academic Affairs
AC 704/597-2224

EVENING COURSES

If you need information about evening course offerings, please contact:

Registrar's Office
(8 a.m. - 6 p.m. M-Th)
(8 a.m. - 5 p.m. Fri.)

CONTINUING EDUCATION

If you need information about continuing education and extension course offerings, please contact:

Director of Continuing Education
AC 704/597-2424

EMERGENCY NUMBERS

Campus Police — Emergency	597-2200
Director of Public Safety & Non-Emergency Calls	597-2282
Safety	597-2449
Handicapped Services	597-2449
Health Service (radio contact with police)	597-2265
Campus Operator	597-2345
Mecklenburg County Police — Emergency	9-911

Cover: The background photo shows a portion of the UNCC campus following one of Charlotte's few winter storms. The smaller photo on the front cover shows UNCC students in front of the Colvard Classroom/Office Building; from left are Melvin Threatt, Janet Morris, Iris Alston and Charles Mock. The smaller photo on the back cover shows the skyline of downtown Charlotte.

The University of North Carolina at Charlotte

Undergraduate & Graduate Catalog 1982-83 Vol. XVIII, No. 1

Published by the Office of Academic Affairs and the Office of Information and Publications, 6/82

Staff Photographer: Sue Johnson

Statements made within this catalog are subject to change by the appropriate authorities.

The University of North Carolina at Charlotte is committed to equality of educational opportunity and does not discriminate against applicants, students or employees based on race, color, national origin, religion, sex, age or handicap. Moreover, the University of North Carolina at Charlotte is open to people of all races and actively seeks to promote racial integration by recruiting and enrolling a larger number of black students.

TABLE OF CONTENTS

Academic Calendar 3
The University 5
Admission To the University 27
Financial Information 43
Academic Regulations and Degree Requirements 59
Courses of Study and Special Programs 77
Courses of Study 78
College of Architecture 79
College of Arts and Sciences 86
Afro-American and African Studies 86
American Studies 90
Department of Biology 92
Department of Chemistry 102
Department of Creative Arts 111
Department of Criminal Justice 128
Department of English 134
Department of Foreign Languages 143
Department of Geography and Earth Sciences 154
Department of History 163
Humanities 170
Department of Mathematics 171
Department of Philosophy 188
Department of Physics 191
Department of Political Science 195
Department of Psychology 204
Department of Religious Studies 213
Social and Behavioral Sciences 216
Department of Sociology and Anthropology 217
Speech 228
College of Business Administration 229
Department of Accounting 234
Department of Business Administration 238
Department of Economics 245
College of Engineering 253
Department of Engineering Analysis and Design 259
Department of Engineering Science, Mechanics and Materials 269
Department of Engineering Technology 277
Department of Urban and Environmental Engineering 293
College of Human Development and Learning 300
Department of Educational Leadership and Instruction 306
Department of Health and Physical Education 319
Department of Human Services 324
Air Force Aerospace Studies Program 328
Army Military Science Program 331
College of Nursing 333
Special Programs 345
Afro-American and African Studies 345
American Studies 345
Charlotte Area Educational Consortium 345
English Language Training Institute 345
Exchange Programs 345
Experiential Learning Programs 346
Honors Program 347
Inter-Institutional Registration 348
International Studies 348
ROTC Programs 349
Venture Program 350
Women's Studies 350
Preparation for Profesional Schools 351
Benefactions 355
University Regulations 359
Directory 361
Index 399

Academic Calendar

FIRST SUMMER SESSION — 1982

Residence Halls Open ..... Monday, May 24
Registration ..... Monday, May 24
Classes Begin ..... Tuesday, May 25
Last Day to Register or Add a Course for Credit ..... Wednesday, May 26
Last Day to Withdraw from School or Drop a Course with Refund ..... Monday, May 31
Last Day to Drop a Course ..... Friday, June 11
Last Day of Classes ..... Tuesday, June 29
Final Examinations ..... Wednesday and Thursday, June 30 and July 1

THREE-WEEK SESSION — 1982

Registration ..... Monday, June 14
Classes Begin. Last Day to Register for Credit ..... Tuesday, June 15
Last Day to Withdraw from School or Drop a Course with Refund ..... Thursday, June 17
Classes Meet ..... Saturday, June 19
Last Day to Drop a Course ..... Wednesday, June 23
Last Day of Classes and/or Final Examinations ..... Thursday, July 1

EIGHT-WEEK SESSION — 1982

Registration ..... Monday, June 14
Classes Begin ..... Tuesday, June 15
Last Day to Register or Add a Course for Credit ..... Wednesday, June 16
Last Day to Withdraw from School or Drop a Course with Refund ..... Friday, June 18
Holiday ..... Monday, July 5
Last Day to Drop a Course ..... Thursday, July 15
Last Day of Classes ..... Tuesday, August 10
Final Examinations ..... Wednesday and Thursday, August 11 and 12

SECOND SUMMER SESSION — 1982

Registration ..... Tuesday, July 6
Classes Begin ..... Wednesday, July 7
Last Day to Register or Add a Course for Credit ..... Thursday, July 8
Last Day to Withdraw from School or Drop a Course with Refund ..... Tuesday, July 13
Last Day to Drop a Course ..... Friday, July 23
Last Day of Classes ..... Tuesday, August 10
Final Examinations ..... Wednesday and Thursday, August 11 and 12

FALL SEMESTER — 1982

Residence Halls Open, Orientation Begins ..... Sunday, August 22
Faculty and Staff Convocation ..... Monday, August 23
Orientation, Registration and Advising ..... Monday and Tuesday, August 23 and 24
Last Day to Register without a Late Penalty ($10) ..... Tuesday, August 24
Classes Begin ..... Wednesday, August 25
Last Day to Register or Add a Course for Credit ..... Tuesday, August 31
Labor Day (No Classes) ..... Monday, September 6
Last Day to Withdraw (or Drop a Course)
WITHOUT RECORD (90% Refund) ..... Wednesday, September 8
Last Day to WITHDRAW (40% Refund) ..... Wednesday, September 22
Last Day to File for a December Degree ..... Friday, October 1
No Classes ..... Monday and Tuesday, October 11 and 12
Reports of Unsatisfactory Grades by Faculty ..... Monday, October 18
Last Day to Drop a Course ..... Friday, October 29
Early Registration for Spring Semester ..... Monday-Friday, November 1-5
Thanksgiving Holidays ..... Wednesday-Friday, November 24-26
Last Day to File for a May Degree ..... Wednesday, December 1
Last Day of Classes ..... Friday, December 10
Final Examinations Begin ..... Monday, December 13
Final Examinations End ..... Friday, December 17

SPRING SEMESTER — 1983

Residence Halls Open ..... Sunday, January 9
Orientation, Advising and Registration ..... Monday and Tuesday, January 10 and 11
Last Day to Register Without a Late Penalty of $10 ..... Tuesday, January 11
Classes Begin ..... Wednesday, January 12
Last Day to Register or Add a Course for Credit ..... Tuesday, January 18
Last Day to Withdraw (Or Drop a Course)
WITHOUT RECORD (90% Refund) ..... Tuesday, January 25
Last Day to WITHDRAW (40% Refund) ..... Tuesday, February 8
Report of Unsatisfactory Grades by Faculty ..... Friday, March 4
Spring Holidays ..... Monday-Friday, March 7-11
Last Day to Drop a Course ..... Friday, March 18
Early Registration for Fall and Summer Sessions ..... Monday-Friday, April 11-15
Last Day of Classes ..... Friday, April 29
Last Day to File for an August Degree ..... Friday, April 29
Final Examinations Begin ..... Monday, May 2
Final Examinations End ..... Monday, May 9
Commencement Exercises ..... Saturday, May 14

SUMMER SESSIONS — 1983

The University schedules summer courses in a combination of terms of three, five and eight weeks in duration. The detailed calendar and course schedules for the Summer Sessions are published during the preceding month of March.

The University

The University

GENERAL INFORMATION

Located in the largest urban center in the Carolinas, the University of North Carolina at Charlotte is an established and growing institution providing the excitement and opportunities of a modern metropolitan university. Enrollment has reached almost 9,600 and is expected to continue a modest and steady growth because of the dynamic setting in Mecklenburg County with more than 400,000 population.

UNCC provides a wide range of four-year degree programs and an increasing number of master's degrees and sixth-year programs designed to serve the needs of Charlotte and the 12-county Metrolina area in particular.

The University's enhanced reputation for high-quality teaching by regular faculty in classes of moderate size is bringing increasing numbers of students from across the state, from other states and from foreign countries. With a large concentration of foreign students, UNCC has one of the most active international studies programs in the country for an institution of its size.

A wide variety of lifelong learning opportunities is offered through UNCC's Continuing Education and Extension Office. Moreover, the University is dedicated to serving the urban community through its Urban Institute. Its relationship to the electronics and other firms in the adjoining University Research Park is a mutually beneficial arrangement. WFAE-FM, a National Public Radio affiliate, provides further outreach to the community.

Despite its metropolitan setting, the campus covers approximately 1,000 acres of rolling hills with forests, streams and ponds. Contemporary buildings of unique design and landscaping are clustered at the central campus which is easily accessible from major interstates and other highways.

The University was created by the 1965 North Carolina General Assembly, which transformed Charlotte College into a campus of the University of North Carolina. Now one of the 16 campuses of the University of North Carolina system, UNCC can trace its lineage to 1946 and the Charlotte Center of the University of North Carolina.

A team comprised of the chancellor, five vice chancellors and six deans gives leadership to the University and its six colleges — Architecture, Arts and Sciences, Business Administration, Engineering, Human Development and Learning, and Nursing.

MISSION STATEMENT

The University of North Carolina at Charlotte and its mission evolve through the interrelationships of its faculty, staff, students and their interaction with its peculiar historic and geographic context. It affirms the classical functions of an institution of higher education to preserve, generate, transmit and apply knowledge and understanding, and to foster and support a vital spirit of open inquiry and critical thinking.

In the spirit of that tradition, the University seeks to address the issues which face all men and women who live in a rapidly changing, technological society in which persons are in ever closer contact with one another. It addresses these issues by focusing concern on the quality of life available to present and succeeding generations, a concern with three primary attachments: individuals, environments and the values which undergird society. Thus, the University is oriented around the complementary ideas of: (1) increasing the capacity of individuals to live productive, satisfying and personally rewarding lives; (2) contributing to the development of intellectual, emotional, physical and social environments in which persons are supported and affirmed; and (3) focusing attention on the ideas and values which have shaped and are shaping civilizations.

The University affirms the primacy of its obligation to assist persons in educating themselves to live productive lives through the application of practical knowledge and inquiring intellects. It recognizes its further obligation to assist people to live creatively within a framework of examined values and to live tolerantly in the knowledge that every person is inexorably joined with all other persons in the process of shaping the future.

The University likewise affirms its obligation to provide opportunities for persons to investigate and contribute to the greater understanding of our environments, construed in the broadest sense, and to encourage those developments which would enhance the quality and enjoyment of life.

Finally, the University affirms its obligation to provide opportunities for persons to examine their thoughts, attitudes and feelings in the light of the ideas and values which shape civilizations; to encourage individual involvement in the process of valuing; and to sensitize people to the importance of values in making personal and corporate decisions.

To apply itself to the tenets of its mission, the University recognizes that it must continue to involve itself with its total environment, that it must promote and protect the freedom which is essential for inquiring minds to grow and be productive, and above all, that it must assure that its own policies and practices reflect its firm belief in the value of persons.

GOALS STATEMENT

The goals of The University of North Carolina at Charlotte emerge from its status as a publicly supported senior institution of higher education, the evolution of understanding of its mission, and the issues presented by its particular time and place.

The University seeks to implement its programs of instruction, research and service so that undergraduate instruction serves as the cornerstone upon which more advanced learning is based and so that the functions are interdependent and mutually supportive.

In recognition of the need to provide focus for these functions, the University has, through a variety of forums and through a continuing process of review and refinement, committed itself to address its mission and define its direction with reference to the following areas of primary concern:

I. The importance of a stimulating LEARNING ENVIRONMENT.

In its commitment to provide opportunities for the free pursuit and exchange of ideas on a variety of issues, the University recognizes that the achievement of all its goals is dependent upon the quality of the intellectual, social, psychological and physical context it provides. The University is therefore committed to develop and maintain its own community so that it is characterized by a climate which nurtures individuals engaged in open inquiry and is itself expressive of the highest goals and aspirations it has for the larger society.

In pursuing this end, the University is committed to assure that people are treated fairly and equitably under its policies and practices; that its decisions are consistent with its value commitments; that educational parochialism is discouraged; and that artificial and unnecessary barriers between people and between ideas and disciplines are minimized. The University is further committed to present recreational activities which take into account the full range of psychological and physical development needs of adults.

II. The necessity for INSTITUTIONAL PLANNING, EVALUATION AND RENEWAL.

The University recognizes that the quality and vitality of its learning environments is a direct expression of the quality and vitality of its faculty and staff. Therefore, the University is committed to attract and nurture people whose personal goals can be realized in the context of this institution and whose interests and capacities can contribute to the realization of the University's goals.

In its obligation to maintain the vitality of its functions of inquiry, transmission and application of knowledge and understanding, the University recognizes that it must meet this obligation as needs, resources and knowledge itself change. Therefore, the University is committed to a continuous examination of its goals, policies, procedures and programs and their results to ensure that it remains true to its mission and responsive of its obligations to society and to those who benefit from the services it may legitimately offer. The University further recognizes that its circumstances offer an opportunity to experiment with and evaluate a new means for serving the rapidly changing society. With this recognition it is committed to search actively for promising new approaches to university education.

III. The LIFELONG LEARNING needs of individuals.

The University recognizes that individuals need to continue to grow intellectually and emotionally throughout their lives if they are to sustain a healthy existence. As the rate of change in society and career patterns accelerates, the need for continuous personal development and career and life planning will likewise increase. Therefore, the University is committed to encourage growth in individuals throughout their lives and to offer them opportunities to realize that growth. In addressing these needs, UNCC offers programs designed to assist men and women in making and implementing career decisions, in examining and clarifying personal values and life patterns and in addressing other issues commonly of personal concern to adults.

IV. The increasing INTERDEPENDENCE OF PEOPLES AND CULTURES.

The University recognizes the increasing interdependence of all peoples and cultures and the important implications this fact holds for succeeding generations. Therefore, the University is committed to provide instructional, research and service programs which are designed to advance knowledge and foster understanding of intercultural differences, similarities and interdependencies. Moreover, the University is committed to generate and transmit knowledge illuminating the framework in which peoples, cultures and nations exist and interact.

V. The relationship between MAN AND ENVIRONMENTS.

The University recognizes that man is a part of many environments but has the capacity to destroy or nurture the life-sustaining aspects of each of these. Therefore, the University is committed to assist persons in recognizing their capacity to change their environments and in becoming increasingly aware of the forces which shape their environments. Moreover, the University is committed to generate, transmit and apply knowledge bearing upon the relationships between individuals and environments and to prepare people who respond sensitively and with understanding, whether as private citizens, leaders or professionals, to the complex issues involved in maintaining the health of those relationships.

VI. The problems and opportunities presented by a RAPIDLY CHANGING, URBANIZING SOCIETY.

The University encourages the view that urbanization is a process that has implications extending far beyond the boundaries of urban centers and that the issues raised by the process transcend the physical-spatial dimensions of life.

The University is committed to the application of established methods of generating, transmitting and applying knowledge bearing upon urbanization, and it strongly encourages the development and evaluation of new approaches as new problems and opportunities emerge.

The University intends to provide programs and services of recognized excellence which address the problems and opportunities produced by the movement of major, contemporary social forces. Much of the instruction, research and public service at UNCC is designed to assist, directly or indirectly, students, professionals-in-the-field, organizations, agencies and communities to participate in and shape the processes attendant to urbanization.

ACCREDITATION

UNCC is fully accredited as a total institution by the Southern Association of Colleges and Schools as well as the North Carolina Association of Colleges and Universities. Various programs within the University are accredited by the appropriate specialized accrediting agencies. The College of Architecture is accredited by the National Architectural Accrediting Board. The University's program for teacher education is approved for teacher certification by the North Carolina State Department of Public Instruction. Programs within the College of Engineering are accredited by the Accrediting Board for Engineering and Technology. The Nursing Program is accredited by the National League for Nursing and approved by the North Carolina Board of Nursing. The Department of Chemistry is on the approved list of the American Chemical Society.

The University is a member of the Council of Graduate Schools in the United States and the Conference of Southern Graduate Schools.

ACADEMIC STRUCTURE

UNCC is organized into five administrative divisions: Academic Affairs, Business Affairs, Development, Research and Public Service, and Student Affairs. The Division of Academic Affairs includes the Library, Computer Center, Learning Resources Center, Offices of Admissions, Records, Graduate Studies and six colleges, the College of Architecture, Arts and Sciences, Business Administration, Engineering, Human Development and Learning, and Nursing. The colleges offer more than 40 undergraduate degree options and 20 master's degree options and five sixth-year Certificate of Advanced Study programs through the 28 departments and programs listed by college in the "Courses of Study and Special Programs" section of this catalog. UNCC's commitment to teacher education involves many of the departments and programs throughout the University.

EVENING COURSES

The University schedules its course offerings from 8 a.m. through 10:30 p.m. Monday through Thursday and 8 a.m. through 5 p.m. on Friday. A well rounded selection of courses is available in the evening. A substantial majority of courses approved for graduate credit are taught in the evening. Information about evening course offerings may be obtained from the Registrar's Office (AC 704/597-2286 from 8 a.m. until 6 -.m. Mondays through Thursdays and from 8 a.m. until 5 p.m. Fridays.

SUMMER COURSES

UNCC schedules a variety of course offerings during its Summer Sessions which are held each year beginning in May and ending in mid-August. These courses are scheduled in two five-week terms and overlapping three and eight-week terms. Regular course offerings are supplemented by short-term courses, institutes and workshops. Continuing students, visitors or students from the community should find their needs answered by offerings from many disciplines. Information about summer courses may be obtained from the Office of Academic Affairs (AC 704/597-2224).

PRIVACY OF EDUCATIONAL RECORDS

Access to student educational records is regulated by the Family Educational Rights and Privacy Act of 1974. This act, with which the institution intends to comply fully, was designed to protect the privacy of education records, to establish the right of students to inspect and review their education records and to provide guidelines for the correction of inaccurate or misleading data through informed and formal hearing. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office (FERPA) concerning alleged failures by the institution to comply with the act.

Local policy explains in detail the procedures to be used by the institution for compliance with the provisions of the act. Copies of the policy can be found in the following offices: Vice Chancellor for Academic Affairs, Vice Chancellor for Student Affairs, Dean of Students and Registrar.

The University of North Carolina at Charlotte categorizes the following as Directory Information:

Name, address, telephone number, date of birth, participation in officially recognized activities and sports, weight and height of members of athletic teams, degrees and awards received, dates of attendance, major and class schedule.

Students have the right to withhold disclosure of Directory Information by completing a request for non-disclosure in the Registrar's Office. Requests for non-disclosure must be filed annually. The University of North Carolina at Charlotte assumes that failure on the part of any student to file a request for non-disclosure indicates approval for disclosure.

Questions concerning the Family Educational Rights and Privacy act and related grievance procedures may be referred to the Registrar.

EQUAL OPPORTUNITY

The University of North Carolina at Charlotte is dedicated to equality of opportunity within the University community. Discrimination based on sex, race, color, national origin, religion, age, or handicapped status is not condoned and shall not be practiced against students, employees, or applicants.

Further, the University of North Carolina at Charlotte supports the protections available to members of the University community under all applicable federal laws, including Title VI and VII of the Civil Rights Act, Title IX of the Educational Amendments, Sections 799A and 845 of the Public Health Service Act, the Equal Pay and Age Discrimination Acts, the Rehabilitation Act of 1973, and Executive Order 11246.

The University has a published Affirmative Action and Equal Opportunity Plan. It has completed a self-evaluation of current policies and procedures to insure compliance with the requirements of Title IX of the Educational Amendments of 1972 and it has completed the compliance report required by Section 504 of the Rehabilitation Act of 1973. Copies of these documents have been placed on reserve in the UNCC library.

Both informal and formal grievance procedures have been established for use by any member of the University community who feels discrimination by any segment of the University.

Facilities and Services

ACADEMIC AFFAIRS

The J. Murrey Atkins Library is located near the center of the campus of the University of North Carolina at Charlotte. The library houses an open-shelf collection which includes over 316,000 bound volumes, 450,000 units in microform and approximately 100,000 manuscripts in closed stacks. Back files of certain periodicals and newspapers are available on microfilm. The Library of Congress classification system is used for the arrangement of books and periodicals.

Atkins Library meets the informational needs of the University community by offering a variety of services. A staff of 63 people, including 18 librarians, acquires, organizes and services the collections. Reference librarians provide assistance to students in the use of library materials and help students develop research skills through various bibliographic instruction programs. Computer searches and interlibrary loan are among the services available to the University community.

A number of special collections are available to the University community. A selective depository of U.S. publications since 1964, the library has 200,000 federal government documents. The North Carolina documents collection, begun in 1976, is a rapidly growing collection of publications of state government agencies. In addition, there is a collection of reference materials relating to North and South Carolina. The library is also a depository of U.S. Geological Survey and Defense Mapping Agency maps. The collection consists of over 20,000 maps. Sound recordings, audio-visual media, college catalogs and education curriculum materials complement the library's print collections.

The library administers a collection of rare books, official University records, manuscripts and oral history tapes. The Rare Book Collection, numbering some 3,200 volumes, contains literary first editions, historical children's books, early printed works, fine press books and a large number of seventeenth and eighteenth century English plays. The University Archives includes administrative files, theses, photographs and other material relating to the history of the University. The Non-University Archives contains over 60 collections, including the papers of Harry Golden and several past mayors of Charlotte. An Oral History Program, also administered by the library, has conducted interviews with a number of distinguished local citizens. Tapes and transcripts of these interviews are available for use by the library's clientele.

In addition to materials directly related to classroom and research work, the library provides students with general and recreational reading materials. Exhibits and displays presenting ideas and issues are also a regular part of the library's service program. Dispersed throughout the library is an excellent art collection which includes sculpture, oils, lithographs, watercolors and etchings.

The Friends of UNCC and individual donors have played a significant role in developing and contributing to the growth of the library's collections.

The Computer Center provides digital computer support to the academic and administrative programs at the University. Less than 20 years ago the use of computers was at its infancy, and now it has been said that this is the "Computer Decade." In fact, the computer revolution has been compared in its impact on society to the industrial revolution. Students are encouraged to learn about computer utility through use of the resources in the Computer Center. These resources include a Burroughs B6930 Computer System connected to the Triangle Universities Computation Center, student use centers containing terminals, remote job entry station into the B6930 and a variety of software.

Use of the computer is widespread at UNCC. Examples of its use in academic areas are the study of programming languages in computer science, statistical analysis of data files for sociology, history, political science and psychology, transportation problem solving in geogra-

phy, and molecular analysis in chemistry. Examples of its use in administrative areas are maintenance of vendor and budget files for the business office and the processing of student information for the Records and Admissions Office.

The Learning Resources Center offers a wide range of audio and visual communication services to both students and faculty engaged in University-sponsored functions. The Center is located in Atkins 200 and is open from 7:30 a.m. to 10 p.m. Monday through Thursday and until 5 p.m. on Friday.

A versatile and creative media production staff will aid you in producing high quality color slides, overhead transparencies, black and white photographs, video tapes and multi-media programs, as well as high impact multi-image presentations. These media productions are effective for improving classroom instruction, professional presentations, student projects and public relations.

The Learning Resources Center loans communications equipment for short-term use to students and faculty. Among the devices available are motion picture projectors, slide and filmstrip projectors, overhead and opaque projectors, photographic cameras, audio and video tape recorders, public address systems, record players and projector screens. The staff offers advice on the selection of appropriate equipment as well as operating instructions.

A television studio is available for students and faculty to produce video tapes. The studio is used for recording interviews with campus guests, presentation of student projects, producing auto-tutorial laboratory tapes, and providing immediate feedback of performance for individual or group analysis. Equipment is available for playback of video tapes in University classrooms.

Approximately 700 University owned 16mm motion picture films are distributed through the Learning Resources Center. Students and faculty may borrow these films without charge. Through an on-going film preview program, new films are constantly being evaluated for purchase. Films are purchased with funds from each departmental library materials allocation.

Recognizing that audio and visual communications are a vital and integral part of every person's professional development, the Learning Resources staff offers a variety of communications workshops on such topics as television production, color slide production, slide duplication, dry mounting, laminating, thermal and diazo transparency production, projector operation, audio and video tape recording, and instructional development. Workshops can be requested and planned by student and faculty groups interested in expanding communications skills.

The Chimney Rock Park Field Station is located in the Blue Ridge Mountains 30 miles southeast of Asheville. The University has an agreement with Chimney Rock Park to investigate the biological, geological and cultural features of the 800-acre park. Area available for study extends from the Broad River at the bottom of Hickory Nut Gorge to the top, a vertical climb of over 1,500 feet. Internships for research-park employment are available through the Scientific Advisory Board in care of the Department of Biology.

The UNCC Experimental Ecological Reserve is a 63-acre tract of land set aside by the UNCC Board of Trustees on campus as a permanent ecological reserve for use as an outdoor classroom and laboratory. The reserve includes an eight-acre old field, pine stands, mixed pine-hardwood forest, and a relatively undisturbed 10-acre watershed of oak-hickory forest.

STUDENT AFFAIRS

The Cone University Center serves as the hub of activity for informal gatherings, social and educational activities on campus and relaxation.

Within the University Center are located the offices of the Student Body Government, Carolina Journal, WFAE, Sanskrit, Rogues and Rascals, Black Student Union, University Program

Board, Student Financial Services, Caucus (Clubs and Organizations, Venture Program, Campus Programs) and the administrative offices for the University Center.

Services and facilities available are the Craft Cellar, Gamesroom, Information Desk, Travel Center, INFO Line, the Candy Shoppe, Discount Movie Tickets Office, meeting rooms and facilities for dances, lectures, concerts, films and banquets.

The Rathskeller is located beneath the Residence Hall Cafeteria. Within it is a snack bar which serves pizza, sandwiches made to order, hot dogs, hamburgers and ice cream. The Rathskeller Program Committee offers a wide variety of entertainment for your enjoyment including name coffeehouse entertainment, movies, football and TV viewing.

University residence halls, suites and apartments offer students an experience filled with opportunity. Four high-rise halls house approximately 500 students each. Each room includes study and sleeping areas for two students and is equipped with built-in dressers, study desks, chairs and closets. Each floor has a central lounge plus study, typing and seminar rooms. Two elevators service each air-conditioned building. Each building also contains an office for the full-time professional staff (Residence Coordinator), student mail boxes, a concessions area and lounge and a laundry room. A meal plan is required with high-rise residency.

The four-story low-rise halls are built on a suite arrangement. Suites offer the same potential for growth but, in addition, provide more privacy. The living environment consists of three buildings, each housing a total of only 80 students. Two students share a double room and four students share a bath and den area. This lifestyle also requires participation in a meal plan.

On-campus apartments offer an alternative to group living without the disadvantages and expense of commuting. They offer students a more private living environment and require a more self-reliant lifestyle. Each apartment is a four-bedroom unit, with one student assigned to each bedroom. The four students share a bathroom area and kitchen complete with cooking facilities and living/dining space. The apartments are designed to be as like the "outside world" as possible. A meal plan is optional, allowing students the experience of buying and preparing their own food, if they so desire. (Note: Freshmen are not eligible for the apartment lifestyle.)

The University does not require students to live on campus and the limited space available is filled early. A student who plans to live on campus should apply as soon as possible as assignments are made based on date of receipt of contract. An application for housing will be sent to the entering student at the time of his or her final admission to the University. A $100 deposit should be returned with the application to the Director of Residence Life.

Housing facilities designed specifically for handicapped students in wheelchairs are available. Wheelchair students who receive residence hall space confirmation have priority in assignment to these facilities *as long as the University is able to offer space.* It is extremely important that the housing application is received before all space is committed so that this priority for assignment to handicapped facilities can be exercised. Wheelchair students may be considered for priority status on the waiting list on the basis of (1) the date of application and (2) the degree of utilization of wheelchair-equipped facilities as compared to the proportion of wheelchair students who apply.

The University shall not assume any responsibility for the provision of attendants. Such arrangements are entirely the responsibility of the individual student and should be established well in advance of the time such services are to begin.

The University Counseling Center offers the services of professionally trained counselors and psychologists to the University community without charge. Initial counseling appointments may be arranged in Room 06 of the Atkins Building or by calling 597-2104. All counseling interviews are treated in a confidential manner.

The aim of the Counseling Center is to help individuals to gain greater self-understanding to deal effectively with important decisions and to resolve current problems. The counseling pro-

cess is individualized for each person to meet his particular needs. It may include individual sessions with a professional counselor, group meetings, use of standardized tests of interests, aptitudes and personality characteristics, or utilization of an extensive occupational-educational library. The staff is also available for consultation to University faculty, groups and agencies.

Learning Assistance Services, a part of the Counseling Center, offers special services in developing academic skills. The contents of the programs are offered on both group and individual bases to meet the specific needs of individual students. Group programs concentrate on short sessions in reading, study skills, note taking, and effective listening. Students are offered the opportunity to continue the group programs on an individualized basis in an open atmosphere. Individualized studies can be broadened to include vocabulary development, spelling, reading and listening improvement, mathematics and English.

The Placement Office (located in Room 132, King Building) functions as the central placement agency for the campus and serves undergraduates, graduate students and alumni by assisting them in developing their career objectives (preferably beginning with their admission to the University) and in obtaining employment. Services include career planning and guidance; advising on the techniques of employment prospecting, on job selection and analysis, on interviewing, on the preparation of resumes and writing of business letters; maintaining, for student browsing, files of information on prospective employers (business firms, governmental agencies, school systems) and on graduate school fellowships and assistantships; providing liaison between employers or graduate schools and UNCC degree candidates through on-campus recruiting by employers and graduate school representatives and by individual referral of prospective UNCC graduates and alumni to current employment openings.

Students who wish to earn part of their educational expenses or to gain work experience may register for part-time, full-time or summer employment off campus. Every effort is made to assist the student who expresses a need for employment and, where possible, to place the student in a position relating to his/her vocational goal.

Degree candidates register with the Placement Office on a voluntary basis early in their graduating year by completing a resume and requesting three professors and/or employers to complete evaluations on forms provided by the Placement Office. At the present time, these credentials are retained on a permanent basis.

The Family Educational Rights and Privacy Act of 1974 provides that the release of placement credentials or information in the file must be authorized in writing by the registrant unless the information is a matter of public record, and that under certain conditions each student may have the right to review his/her placement file (resume and evaluation) and to obtain a copy of it for a fee.

All employers and schools interviewing on campus or listing openings with the Placement Office must indicate that they are equal opportunity employers, that is, that in hiring, compensation, promotion, training or admission they do not discriminate on the basis of race, color, religion, sex, age, national origin or handicap.

The University Health Service is operated 24 hours a day, seven days a week during regular school terms, the only exception being University holidays and vacation periods when service is limited to daytime hours only. Physician care is provided on a full-time basis from 8 a.m. to 5 p.m. Monday through Friday, and a physician is on call for all emergencies. Registered nurses are on duty at all times.

The Health Service offers comprehensive care to all students. A full range of laboratory testing, x-rays and minor emergency work, including suturing, is available. Allergy shots and routine immunizations are provided as needed.

Appoximately 12 patients can be housed in the in-patient portion of the Health Service which contains four semi-private rooms and four private rooms.

A completed health form and current I.D. are necessary prior to any service's being provided by the Health Service.

Intramural sports are offered in a comprehensive program to provide enjoyable recreational opportunities for the student body. The program includes team, dual and individual sports for both men and women, corecreational activities and ample opportunities for unstructured "free play" activities. The gymnasium is open for student use throughout the week, at night and on weekends.

Designed primarily for the participant, the gymnasium features six indoor basketball courts, an Olympic-size swimming pool, handball and squash courts, weight and wrestling rooms, a well-equipped training room and lockers for 6,000 students and faculty. It will seat 3,200 spectators for basketball and other intercollegiate activities. In addition, the gym houses classrooms and an auditorium for audiovisual presentations.

BUSINESS AFFAIRS

The Department of Public Safety, located on the first floor of King Building, is designed to serve the students, faculty, and staff of the University and to protect their persons and property. It is divided into three areas — Police, Traffic, and Safety — and, is also responsible for the University Lost and Found Department.

Police services to the University community are provided 24 hours a day, seven days a week. Campus police officers are commissioned by the attorney general of North Carolina and have full police powers on campus. Ninety percent of these officers are or have been students, either at UNCC or other institutions, and are sympathetic and understanding of the problems of the students.

The primary responsibility of the Police Department is performing traditional law enforcement roles of prevention of crime, enforcement of laws, protection of life or property, preservation of the peace, and apprehension of criminals.

The department includes an Investigative Division to which information regarding criminal activity should be directed. Prompt, confidential attention will be given. A Crime Prevention and Public Awareness Office has also been established for the department and is designed to help educate the public in the best ways to protect themselves and their property.

Realizing that people frequently call the police officer when they know of no one else to call, the department takes pride in being available, capable and willing to respond to each situation presented regardless of how small it may seem. It is hopeful that by police displaying a willingness and ability to perform these functions, the University community will become more aware of the presence of the police officer on campus and seek his assistance when crime is observed or suspected. This awareness and quick reaction enhances the crime prevention program by discouraging the commission of crime.

Access to all buildings and all rooms during non-class hours may be gained only with the written permission of a faculty member. University police must be contacted to gain entrance into locked rooms.

Dorm security guards are assigned to the residence halls for the protection and service of the resident students. These guards do not have policy authority. Their primary function is to serve as an additional set of eyes for the Police Department. In addition, periodic checks of the dorms are made during evening and night. Duplicate keys are kept to assist students who are locked out of their rooms, and the guard maintains a petty cash box for change purposes.

The University prides itself on its record of safety maintained on campus and this department maintains high standards both in its employees and their functions. However, no program can hope to successfully combat crime without the active assistance and input of the entire University community. When an unusual happening is observed, it takes only a moment to remember

details and report it to the Police Department.

The Traffic Division is one of the most visible aspects of the department as all members of the community must make contact during vehicle registration, when obtaining an I.D. card, or when having parking notices processed.

All persons desiring to park motor vehicles on campus are required to purchase and display a University parking permit. Permits designate specific parking area, depending upon the individual's classification as resident, commuter, faculty or staff. Night decals are available by the semester and are valid in any lot after 4 p.m. Persons with a night permit must park at meters or toll gates between 8 a.m. and 4 p.m. Presentation of state vehicle registration or appropriate proof of ownership shall be required. None guarantee a space will be available nor do they reserve a specific space, except in the case of handicapped individuals. Parking meters and toll gates are available for visitors on campus. Temporary permits are available from the Traffic Office for new employees, guests, and for vehicles being used while a registered vehicle is being repaired and/or other valid reasons. Abbreviated copies of the *Campus Traffic and Parking Regulations* are available from the Traffic Office for the asking or when purchasing a permit.

The Traffic Office is responsible for providing identification cards for all students, faculty, staff and other personnel associated with the University. In order to check out books from the library, cash checks, enter athletic events or to use athletic equipment, one must have a valid I.D. card.

The promotion of safety and accident prevention is another important service offered by the Department of Public Safety through the work of a safety coordinator. It is the responsibility of the coordinator to investigate accidents on campus, conduct safety inspections of all buildings, maintain all reports required by the N.C. Department of Labor and to generally ensure that all persons within the University community are provided with a safe and healthful environment, conducive to the prevention of illness or injury.

Those who have complaints or knowledge of safety hazards are invited to bring them to the attention of the safety coordinator without fear of retaliation. All complaints or notification of hazards will be acted upon and the employee or student notified of the response.

The Office for Handicapped Services provides information and assistance for physically impaired persons on the University campus. All students with impaired sensory, manual or speaking skills requiring assistance should identify themselves to the Office for Handicapped Services as early as possible to ensure University capability in meeting the needs of the student.

The Office shall work with the student in locating any necessary educational auxiliary aids. The University shall not assume any responsibility for the provision of attendants, individually prescribed devices, readers for personal use or study, or any device or service of a personal nature. The arrangements for these types of services are entirely the responsibility of the individual student and should be established well in advance of the time such services are to begin.

Students who have grievances related to delivery by the University of special services for the handicapped should process the grievance in accordance with procedures on file in the Office of Handicapped Services.

The Charlotte Transit System provides bus transportation from the Square, from Southpark Shopping Center — via Eastland Mall and the apartment complexes along Barrington Drive, and from Freedom Mall. Service is provided on a regular schedule connecting with established routes throughout the city. Detailed information regarding routes, schedules and fares may be obtained at the UNCC Information Desk or by calling 597-BUSS. Low cost passes may be obtained with a UNCC I.D. card at the Business Office.

Food Service

Resident students living in the high-rise and low-rise residence halls contract for room and board which provides three meals each day on either a five-day or seven-day plan, as they choose. These students are permitted to take meals at any one of four food service locations on campus: the Residence Halls Cafeteria, the Cafeteria-Activities Building, the University Center Cafeteria or the Rathskeller. A dollar allowance is given for meals taken in the University Center Cafeteria or the Rathskeller, and these students pay cash for anything over the established amount.

Commuter students and those students living in apartment units on campus have several options for eating on campus. They may purchase a meal plan and be on the same basis as students described above. This is accomplished by purchasing the desired plan in the Office of the Business Manager. In addition, they may purchase meals for cash at the University Center Cafeteria, the New York Deli (in the Bookstore Building), the Denny Snack Bar, the Rathskeller, the Cafeteria-Activities Building or the Residence Halls Cafeteria.

Vending machines are located throughout the campus, and the vending areas in the University Center and in the Denny Building have microwave ovens for heating items available in the machines.

Hours of operation of all food service units are posted in each unit. Generally speaking, food service of one kind or another is available on campus from 7 a.m. to 11 p.m.; vending is, of course, available whenever buildings are open.

The University Bookstore makes available required textbooks, paperback books for leisure reading, records, sweatshirts, jackets and special order shirts, campus emblems, personal grooming items, routine school supplies, greeting cards, sundries, fraternity/sorority items, household and novelty items. The bookstore also offers film developing and printing service and service for special order books.

RESEARCH AND PUBLIC SERVICE

Office of Continuing Education and Extension

The Office of Continuing Education and Extension is responsible for two separate areas of University Programming:

(a) *Continuing Education* is a series of programs tailored to the needs of the Charlotte area, taught either on or off the UNCC campus. Such programs may be designed for the general public or for special interest groups, but are usually of short duration and limited scope. They, therefore, do not award academic credit but may award continuing education units (CEU's). The CEU is rapidly becoming a universal unit of measure for non-academic involvement in educational programs, and records of CEU's are kept permanently. One CEU is awarded for every 10 hours of structured educational activity. Teachers of continuing education programs are contracted from the UNCC faculty and the community at large. Requests for programs or application to conduct a continuing education project should be submitted to the Office of Continuing Education and Extension.

(b) *Extension* is defined as programs for academic credit developed and offered to client groups other than the residential daytime student. Extension work is limited to the academic areas approved for credit by the University of North Carolina Board of Governors and to courses approved by the UNCC faculty. Faculty teaching in extension must be approved by the academic department which awards the credit. Extension credit may be applied toward a degree at UNCC.

Center for International Studies

The Center for International Studies, by offering a concentration, allows students to pursue an interdisciplinary and comparative study of foreign cultures and societies while they fulfill the academic requirements for a major in one of the approved University degree programs.

A concentration in international studies permits a wide variety of choice in subject matter and encourages course work in modern foreign languages, humanities, social sciences and international economics and business. Carefully selected programs should be designed to provide students with cultural and intellectual enrichment for more rewarding lives in an increasingly interdependent world. Such programs should also be of particular value to those with career objectives in government, business, trade, finance, law, health and environmental programs, international agencies such as the United Nations, private religious and humanitarian service organizations, journalism, teaching, research and military service. (See International Studies listing under Courses of Study and Special Programs for additional information)

The Center also serves as a facilitator in the development of faculty exchange opportunities. Faculty are encouraged to work with the Center's staff in exploring and applying for a wide range of international exchanges. Among those are the Fulbright Exchange Program; reciprocal department exchanges; and exchanges based on agreements between UNCC and overseas institutions of higher learning.

Faculty and administrators are also able to take advantage of the Center's professional development program. This program provides opportunities for the further enhancement of international interests in the following ways:

1. Travel for international study and research;
2. Release time for the development of new international courses and specific international projects; and
3. Faculty colloquia on international topics.

Travel and Study Abroad

The Center for International Studies offers UNCC students the opportunity to travel and study abroad either for a year, semester or summer term. Programs during the summer are arranged in a variety of countries each year. A student should contact the Center for International Studies no later than March 30 to be considered for a summer travel/study program. (See International Studies listing under Courses of Study and Special Programs for additional information on study abroad and student exchange opportunities.)

International Student Services

International Student services are designed to respond to a diverse population having special needs in the areas of immigration, language, campus orientation and cultural understanding. The focus of services include UNCC students, English Language Training Institute students, other international students, and faculty on an immigrant visa.

Major programs include orientation, individual counsel and assistance with academic and personal questions, immigration matters, and campus and community services.

Campus Programming

A series of annual and one-time events is sponsored independently and in cooperation with other departments and agencies. They include:

1. Annual International Festival
2. International Film Festival
3. International Club
4. International Student Vacation/Study Programs and Summer Institutes
5. A variety of international programs relevant to international student concerns. Examples include lectures, Model United Nations, and food day celebrations.

The English Language Training Institute

The English Language Training Institute (ELTI) is an intensive (20 hours per week) language program for university bound foreign students who lack adequate English proficiency. The curriculum is designed to provide a systematic progression in Grammar, Composition, Reading, and Pronunciation. Class number is kept low and classes meet four days a week for 15 weeks.

The ELTI also offers a program, the Advanced 50, for exceptionally able language students. The students who qualify for the Advanced 50 are permitted to take a maximum of six academic credits with the advanced-level English classes.

Public Service

The Center seeks to initiate and respond to the international needs and interests of the community. Current programs include the following:

1. *Community Forums* — symposia on topics of current international interest;
2. *Great Decisions* — an annual series of lecture/discussions during the months of February and March on eight key policy issues;
3. *International Business Workshops* — programs focusing on specific aspects of international trade, e.g. letters of credit, customs regulations, international marketing, documentation, and foreign trade zone;
4. *Friendship Force* — annual community exchange between citizens of Charlotte and another international city;
5. *Community-based programs having an international focus include* —

   Host Family Programs for foreign students,
   Bi-lingual Education program in the Charlotte-Mecklenburg Schools,
   Sister Cities International,
   International Information Center, and
6. *Service to individuals and community organizations for international information and program development.*

Urban Institute

The Urban Institute provides direction for the University's urban focus by initiating and supporting urban-related research, institutes, seminars, publications and special community projects. Institute activities are designed to increase productive interaction between the University and the community. Projects are initiated by members of the faculty, community clients or the Institute staff and focus on a broad spectrum of urban topics, e.g., local government, industrial wastes, land use, energy, day care needs, urban history, labor, etc. Students may become involved in Institute projects as part-time research assistants, interviewers, or in conjunction with course work or degree requirements by writing term papers, graduate theses, or completing internships.

Institute activities fall into several program areas. All are affected by the Institute's active involvement in seeking grants and contracts to expand current activities.

The Faculty Research and Development Program assists faculty in the development and administration of urban-related applied research projects. It provides seed grant monies to faculty to develop proposals for submission to external funding agencies, assists in funding searches, and proposal preparation and submission.

The Community Service Program responds to community needs and assists community clients in several ways. The current focus is the implementation of a Survey and Needs Assessment

Service which conducts an annual survey of city and county residents, and in conjunction with members of the faculty, designs and implements needs assessments for community clients. In addition, the program responds to community needs by matching clients with members of the faculty with appropriate expertise, hosting special seminars and conferences or conducting training sessions. The program director is a dual appointment with the Department of Political Science.

The Regional Information System is a computerized data bank containing a broad spectrum of data on Charlotte-Mecklenburg, North Carolina and the South. System data can be accessed in graphic and tabular form and is available to faculty for research and educational purposes. The director is dually appointed with the Department of Geography and Earth Sciences.

The Regional Publications Program focuses on developing an outlet for publication of University-based community research. It is anticipated that the program, which is directly linked to other Institute programs, will include a regional newsletter, a monograph series, and other publications which disseminate urban-related information.

The Special Projects Program provides assistance to members of the faculty to initiate viable multi-disciplinary programs such as the Southern Studies Program or the Piedmont Industrial Waste Exchange. As the need arises, particularly where the project requires the University to take a leadership role in a special urban-related problem area, special projects are initiated and implemented by the Urban Institute.

Office of Academic Grants and Contracts

The Office of Academic Grants and Contracts has been established to inform and assist the University community in seeking grants, contracts and service agreements for funding research, training and other scholarly activities. The staff is available to consult with faculty and to assist in pre-award activities such as identification of sources, interpretation of guidelines, preparation of budgets and compliance with regulations. The Office also maintains a resource area consisting of grant guidelines, reference books and proposal preparation aids.

WFAE

Public radio WFAE-FM broadcasts with 100,000 watts of power to listeners in Charlotte and 20 surrounding counties in North Carolina. The only affiliate of National Public Radio in this part of North Carolina, WFAE programs jazz, classical music, news, information and public affairs from 6 a.m. until midnight, 365 days a year. Volunteers and student interns supplement the work of five full-time professional staff members in areas of operations, production and promotion. In addition, UNCC faculty, staff and students contribute to WFAE's ongoing local programming efforts.

Athletics

The University of North Carolina at Charlotte offers the interested student-athlete a choice of 10 intercollegiate sports for men and women in which to compete on the varsity level.

Male athletes at UNCC compete in six sports during the academic year — soccer and cross country in the fall, basketball in the winter (during fall and spring semesters) and tennis, baseball and golf (also with a fall schedule) in the spring.

The 49er men's program competes under the national governing powers of the National Collegiate Athletic Association (NCAA), of which it is a member of Division 1, the highest competitive level (large colleges and universities), in all six sports.

UNCC is also a charter member of the six-year-old Sun Belt Conference, which includes Jacksonville, South Florida, South Alabama, Alabama in Birmingham and Virginia Commonwealth. Championship meets and tournaments are conducted in all six sports within the SBC, from which winners may advance to the NCAA's national championship events. A round-

robin home and away SBC schedule is played in basketball, the sport which receives the major emphasis at UNCC.

Grants-in-aid are available to deserving male athletes in all six sports.

The UNCC women's intercollegiate athletic program consists of four sports, including volleyball in the fall, basketball in the winter and softball and tennis in the spring. The women's program falls under the national governing jurisdiction of the Association of Intercollegiate Athletics for Women (AIAW) and the state control of the NCAIAW.

The 49er women now compete at the Division II level of the NCAIAW, with future plans to improve to the higher competitive level of Division I (large colleges and universities). Athletic scholarships for deserving female athletes are also available in all four women's sports, with basketball receiving the emphasis in terms of funds allocated.

The 49er basketball team plays its home games in the Charlotte Coliseum and the campus Mine Shaft gymnasium; the baseball team in Charlotte's Crockett Park, the golf team at Myer's Park and Cabarrus Country Clubs, and the remaining three men's teams play on campus. The UNCC women play home basketball games in the Charlotte Coliseum and the Mine Shaft gymnasium on campus, home volleyball matches in the Mine Shaft, and softball and tennis on campus facilities.

DEVELOPMENTAL AFFAIRS

The Office of Development, located in the Administration Building, is responsible for coordination of University efforts to secure financial support from the private sector and to serve as the receiving point for gifts of dollars, securities, works of art, land and equipment.

Through the Foundation of the University of North Carolina at Charlotte, the General Alumni Association, Friends of UNCC and the Athletic Foundation, the various avenues of supporting the University are made known to individuals, corporations and foundations.

To achieve a superior standing, UNCC relies upon the private sector for funds not available through state appropriations. Contributors are encouraged to take advantage of the various and most favorable means of supporting the University. Included among these are cash gifts, charitable remainder trusts, annuity trusts, unitrusts, pooled life income funds, wills and bequests, insurance and matching gift programs.

Additional information is available in the Office of the Vice Chancellor for Development, UNCC, UNCC Station, Charlotte, N.C. 28223; telephone 704-597-2271.

The General Alumni Association of the University of North Carolina at Charlotte is the recognized official alumni organization. Graduates of the University are encouraged to provide updated address and employment information so that the University may maintain lifelong contacts with each individual. Persons attending the University of North Carolina at Charlotte for one semester are eligible for membership in the General Alumni Association.

Membership can help the student maintain friendships of college days and obtain useful information from the University about programs and social activities. The General Alumni Association executes an annual telefund as part of the annual giving program and contributes to worthy projects for the University. Thus, the alumnus can support Alma Mater in a useful and efficient way.

A magazine is provided to contributing members of the Alumni Association and group tours to vacation spots within the United States and also abroad are organized.

The Alumni Association co-sponsors with the University the Commencement Reception for the new graduates, parents, faculty and friends. Class reunions are held to honor the anniversary of various classes of graduates. The Homecoming activities highlight the events of the fiscal year for our alumni.

The Chancellor's Club provides UNCC Alumni an opportunity to support academic excellence in higher education by establishing an endowment fund for the Alumni Merit Scholarship program. The Alumni Merit Scholarship is awarded annually to a UNCC student for outstanding academic performance while attending the University.

The Alumni Office is housed in the Reese Building, and the Director of Alumni Affairs acts as the liaison officer between the graduates and the University.

The graduate should notify the Alumni Office of address changes and significant events in his or her life, such as marriage, births, new positions and honors. In this way, adequate records can be maintained, and the Alumni Office can pass good news along to friends of the alumnus.

The Foundation of the University of North Carolina at Charlotte was founded in 1960 and has had from its inception the goal of undergirding the University and assisting it in the quest for excellence. To accomplish its goals, the Foundation invites private sources to contribute so that needs unmet, or inadequately provided for through state funds, may be met.

Through the 1981-82 academic year, the Directors of the UNCC Foundation have allocated $1.5 million to the University for salary supplements, faculty research, scholarships and special projects.

Patrons of Excellence is a program established by the Foundation of the University of North Carolina at Charlotte, with the primary initial objective of supplementing the salaries of distinguished faculty members. Under the program *Patrons* pledge a minimum of $1,000 a year for a number of 10 years or may make a donation of at least $10,000 at one time. *Patrons of Excellence* now number 217. The Foundation continues to seek additional *Patrons*.

STUDENT ACTIVITIES

Students at the University of North Carolina at Charlotte are encouraged to participate in extracurricular activities. Student Body Government, University Program Board, campus publications, WFAE (the radio station) are only a few of the activities available which can play a significant role in each student's development and total education. Participation in activities, ranging in type from service and religious to athletic and social and from creative arts and crafts to wilderness experiences, increases a student's opportunities to acquire leadership skills, to experience the responsibilities involved in functioning within a self-governmental process, and to develop personal talents.

Student Body Government

The Student Body Government provides students an early experience in governmental affairs. Students often find their work in student government a useful background for later public service. The history of student government is as old as the institution itself. The University encourages student participation in its affairs and has student representatives on many of the faculty and administrative committees. The leaders of student government are committed to representing the student body and to developing students' awareness of the many facets of life at their University. All students who are regularly enrolled at UNCC, whether on a part- or full-time basis, are entitled to participate in student government.

At UNCC, Student Body Government comprises:

The Executive Branch, made up of the president, his/her cabinet, various appointees such as the attorney general and student legal counsel as well as a number of committees appointed by the president.

The Student Legislature, composed of the chairman, the four class presidents, the residence hall presidents, commuter student representatives, representatives chosen by the respective students majoring in the several academic colleges of the University, and graduate

student representatives. The chairman of the Student Legislature conducts all meetings and serves as liaison between the Legislature and the president's office. The student body treasurer reports to the Student Legislature.

The Student Judiciary, composed of the 12 justices of the Student Court, attorney general, and the student legal counsel. These bodies were established for the purpose of judging violations of the rules and regulations of the University, the student Constitution and the various student statutes, and for administering the Honor Code. This code, adopted by the student body during the fall semester of 1965, reads as follows:

> Under the Honor Code you are on your honor not to cheat, lie, or steal; and if you see another student doing so, you are on your honor to report the individual and the circumstances to the appropriate student agency.

The Student Leadership Development Program

The UNCC Leadership Program is sponsored by the Dean of Students Office and offers a variety of activities throughout the academic year. The objectives of the program are:

(1) To develop skills in leadership and communication needed to run voluntary campus organizations;

(2) To develop an awareness of available campus resources to assist student organizations on campus;

(3) To promote interaction among leaders of various campus organizations;

(4) To encourage involvement in extracurricular and cocurricular activities to enhance student development;

(5) To build a foundation for future student leadership on the UNCC campus.

The program consists of five major components. Each component is directed at a target group of UNCC campus leaders, members of their organizations or potential leaders of campus organizations. A variety of training methods and formats are available for student leaders. The components of the Leadership Program are:

(1) The Motivators Program — For established leaders

(2) The President's Club — For club and organization officers

(3) Emerging Leaders Program — For freshmen and sophomores

(4) Developing Leadership Potential — A three-credit course in Human Development and Learning

(5) Individual and Group Consultation

Contact the Dean of Students Office for more information — 597-2375.

University Program Board

The Program Board develops, administers and supervises the social, cultural, educational and recreational programs of an all-University nature for the students, faculty and staff. It provides an opportunity for students to participate in activities conducive to personal, social and educational development and tries to directly reflect student needs and interests. These programs include art exhibits, concerts, dances, coffee houses, travel programs, lectures, films and other special activities.

The Program Board consists of the chairperson, vice chairperson, secretary-treasurer, six committee directors and two members elected at large from the student body. The chairperson and vice chairperson and two at-large members are elected in the annual campus-wide spring elections. The directors are selected by an application-interview-election process during spring semester.

Student Media Board

The Student Media Board is comprised of student, faculty and administrative staff members, as well as representatives of the various student publications. Its purposes are to promote the objectives of each publication and to guarantee editorial freedom to the publications within the framework of responsible journalism. The individual media under the Media Board are as follows:

Sanskrit is a magazine published by students interested in the arts. Original work in writing, drawing, photography and other arts is welcomed by the editor. Students are invited to become members of the magazine staff.

The Carolina Journal is the student newspaper, published twice per week, to cover campus news and provide journalistic experience. Experience on a campus newspaper, together with a broad educational base, often provides the background for a career on a newspaper or a magazine. The campus newspaper provides a vital service to the entire University community by keeping its members informed of issues of common concern and interest.

The yearbook is another publication which provides both a service to the University and an opportunity for student journalists to gain essential skills for later careers. The yearbook is designed to provide a valid picture of the spirit of campus life. It is valued as an organized pictorial record and as an opportunity for creative student journalists to produce a book which is aesthetically pleasing and representative of the student experience at UNCC. Student activity fees partially support this publication, but students who wish to have a copy must purchase one.

Student Broadcasting Association is an organization that promotes student involvement in the University's Public Radio Station, WFAE. Students have active roles in many areas of radio broadcasting.

ORGANIZATIONS

The University has many clubs and organizations which help meet the academic, social, political and religious needs of UNCC students. Following is a list of the clubs and organizations which are chartered for the 1982-83 academic year through the Student Government Association. Students interested in any of these organizations should contact the Student Government Office (597-4606) or the Dean of Students Office (597-2375).

Allied Health Club
Alpha Delta Pi
Alpha Kappa Psi
Alpha Phi Alpha
Alpha Phi Omega
Amateur Radio Club
American Society of Civil Engineers
American Society of Mechanical Engineers
Associated Student Chapter of the American Institute of Architects
Association of Biology Graduate Students
UNCC Student Chapter of the Association of Computing Machinery
Baptist Student Union
Black Student Union
Chemical Society of UNCC
Chi Phi
Chi Rho (Catholic Student Union)
Children of the Sun
Christian Science Organization
Circle K
College of Architecture-Student Council
Commuter Association
Criminal Justice Club
Debate Team
Delta Sigma Theta
Fellowship of Christian Athletes
Geography & Earth Science
German Club
Hillel
Holshouser Hall
Institute of Electrical and Electronic Engineers
Interfraternity Council
International Club
Inter-Varsity Christian Fellowship
Kappa Alpha Psi
Kappa Sigma
Lambda Chi Alpha
Le Cercle Francais

Master of Urban Administration Student Association
Math Club
Model United Nations
Moore Hall
National Art Education Association
N.C. Gamer's Association
North Carolina Student Legislature
Omega Psi Phi
Panhellenic Council
Pep Band
Phase I Apartment Advisory Committee
Phase II and III Apartment Advisory Committee
Phi Omicron
Pi Sigma Epsilon
Political Science Club
Sanford Hall
Scott Hall
Sigma Phi Epsilon
Sigma Phi Rho
Society of Physics Students
Sports Club Council
Student Anthropological Association
Student Consumer's Union
Student Nurses Association
Tau Beta Pi
The Way Campus Outreach
Wildlife Club
Young Democrats
Zeta Tau Alpha
Sigma Nu
Pi Kappa Phi
Delta Kappa Phi
Delta Zeta
Alpha Sigma Phi
Muslim Student Association
Campus Ministries
Mean Green Al-Anon
UNCC Honorary Accounting Society
Baha'i Club
Ski Club
Republican Club
Black Engineers
Collegiate Chapter of the American Marketing Association

HONORARIES

Alpha Kappa Delta is a national sociology honor society established for the purpose of promoting interest in sociology, research on social problems, and enhancement of human welfare. The Eta of North Carolina Chapter was organized at UNCC in 1974. Its members are selected from those students who have demonstrated superior academic achievement both in their sociology major and their total academic program.

Phi Alpha Theta, which has chapters in the United States, Canada and the Philippines, has as its purpose to encourage the study of history and to acknowledge academic achievement in history. To be eligible for membership, undergraduates must have completed at least 12 semester hours in history with a grade average in all history courses of 3.1 or better, an overall grade average of 3.0 in other courses, and must rank in the upper 35 percent of the respective classes. Graduate students who recently received their undergraduate degrees may apply on the basis of their undergraduate records. Graduate students who are not recent graduates must have completed at least one-third of the requirements for the Master's degree (at least 10 credits in history) and have a straight B average or better.

Phi Kappa Phi, a national honor society with chapters in 49 states, the Philippines and Puerto Rico, has the primary objective of recognizing and encouraging superior scholarship in all academic disciplines. To be eligible for election to membership, a student must have attended UNCC for at least one year and rank scholastically in the upper five percent of the junior class, the upper 10 percent of the senior class, or the upper 10 percent of the graduate enrollment. Graduate students also must have an outstanding undergraduate record. Faculty members and alumni who have achieved scholarly distinction may, in limited numbers, be elected to membership. The number of undergraduates elected to membership within an academic year cannot exceed 10 percent of the number of candidates for baccalaureate degrees that year; and the number of graduate students elected to membership in an academic year cannot exceed 10 percent of the graduate enrollment at the time of the election.

Pi Mu Epsilon is a national honorary society established to promote interest in mathematics. Invitations are based on superior academic achievement both in mathematics and in the general program. Activities include lectures, films and a late spring social meeting.

Pi Sigma Alpha is a national honor society which promotes the study of politics and recognizes the achievements of superior students in the discipline of political science. Invitations for membership are issued to all political science majors who are juniors or seniors and have a quality point average of at least 3.2 overall and in political science courses. Its activities include a formal initiation banquet near the end of each academic year featuring a talk by an established scholar in the discipline.

Sigma Theta Tau, the Honor Society of the College of Nursing, was established for the purpose of recognizing superior knowledge, recognizing the development of leadership qualities, fostering high professional standards, encouraging creative work and strengthening commitment to the ideals and purposes of the nursing profession. Candidates for the honor society are selected from baccalaureate students who have completed at least one-half of the required nursing curriculum with a cumulative grade average of 3.0 or better. Graduate nurses with a baccalaureate or higher degree who have demonstrated marked achievement in the field of nursing are also eligible for membership.

The *Society of 49* is a campus-wide honorary and was created for the purpose of recognizing outstanding leadership and achievement among students who have made significant contributions to the development of the University community. Twenty-four to 30 students are selected each year by a committee of students, faculty and staff. Selection is primarily based on a point system which considers academics, leadership, service and activities. The student receiving the highest number of points is given the Cindy Holmes Award in memory of the late Cindy Holmes whose unselfish contributions to the University represent the highest ideals of the Society.

HONORS AND AWARDS

A number of individual student honors and awards for academic achievement, leadership and service are given annually through the various colleges and on a University-wide basis. Among the academic honors are the Chancellor's List, commencement marshals and graduation with honors with summa cum laude, magna cum laude or cum laude distinction. (See the chapter on Academic Regulations and Degree Requirements for more information.) An annual Honors and Awards Program is held in the spring prior to graduation.

UNIVERSITY FORUM COUNCIL

The University Forum provides a campus platform for outstanding national figures to examine key issues in depth. The University Forum Council, composed of representatives from the student body, faculty, administration and the community, sponsors the Forum each year. Usually held during the spring, the Forum was initiated in 1966.

RELIGIOUS LIFE

As a tax supported public institution, the University of North Carolina at Charlotte neither promotes nor recommends any religious orientation. However, the University recognizes that spiritual discernment and moral appreciation are essential to the development of the whole personality, and there are a variety of opportunities for participation in various aspects of religious life on the University campus. A number of student clubs and organizations with a religious orientation exist on campus (see pages 24 and 25). In addition, the religious denominations listed below provide the full time services of representatives of these denominations to serve the spiritual needs of students and other members of the campus community.

Don Rogers, Baptist
Joseph Zuschmidt, Catholic
Ben Curry, Presbyterian/Methodist

These persons, and other denominational representatives, provide a variety of services including prayer, pastoral and academic counseling, retreats, Bible study, marriage preparation, discussion groups, access to religious books and periodicals, ecumenical activities and social services.

Admission To The University

Degrees Offered

The University offers programs in the areas listed below which lead to the baccalaureate and master's degrees and the Certificates of Advanced Study indicated.

BACCALAUREATE DEGREES

Bachelor of Arts (B.A.)

Afro-American and African Studies
Anthropology
Architecture
Biology
Biology (with option in Medical Technology)
Business Administration
Chemistry
Chemistry (with option in Medical Technology)
Earth Sciences
Economics
English
French
Geography
German
History
Human Development and Learning
Mathematics
Mathematics (with option in Computer Science)
Philosophy
Physics
Political Science
Psychology
Religious Studies
Sociology
Spanish

Bachelor of Architecture (B. Arch.) (5-year program)

Bachelor of Science (B.S.)

Accounting
Biology
Biology (with option in Medical Technology)
Chemistry
Criminal Justice
Mathematics
Mathematics (with option in Computer Science)
Nursing
Physics

Bachelor of Creative Arts (B.C.A.)

Art
Dance
Music
Theatre

Bachelor of Science in Engineering (B.S.E.)

Engineering Analysis and Design
Engineering Science, Mechanics and Materials
Urban and Environmental Engineering

Bachelor of Engineering Technology (B.E.T.)

Civil
Electrical
Mechanical

Bachelor of Science in Nursing (B.S.N.)

GRADUATE DEGREES

Master of Arts (M.A.)

English Geography History Mathematics Mathematics Education Psychology

Master of Human Development and Learning (M.H.D.L.)

Administration and Supervision
Curriculum and Instruction
Early Childhood and Intermediate Education
Guidance and Counseling
Health Education
Reading Education
Special Education

Master of Business Administration (M.B.A.)

Master of Science (M.S.)

Biology Chemistry Criminal Justice

Master of Science in Engineering (M.S.E.)

Master of Science in Nursing (M.S.N.)

Master of Urban Administration (M.U.A.)

Certificates of Advanced Study

(Sixth Year)

Counseling and Guidance
Early Childhood and Intermediate Education
Educational Administration
Secondary Education (English, History, Mathematics)
Curriculum and Instruction Specialist (Supervision)

Application Dates

Students interested in enrolling at UNCC are advised to file their applications for admission according to the schedule below or earlier if possible. The schedule is based on the amount of time required to process an application and inform the student of the admission decision. During periods of rapid growth or in programs which have limitations on the number of new students they can accept, available space may be filled earlier than the dates indicated below.

Term of Entry	Application Should Be Filed By	Application Should Be Completed By
First Summer Term	May 1	May 15
Second Summer Term	June 15	July 1
Fall Semester	July 1	July 15
Spring Semester	December 1	December 15

The University may alter these application dates in accordance with available resources and the enrollment limitation established by the North Carolina General Assembly.

Students planning to live on campus should apply for admission and request a housing application as early as possible. *Admission to UNCC does not guarantee residence hall space* because the demand for on-campus housing is usually greater than the supply. Students who request

on-campus housing will receive a housing application with their notice of admission. Students are advised to complete the housing application and return it and the required prepayment promptly to increase the possibility of getting space in one of the residence facilities. Early application for housing is particularly important for physically impaired students because of the limited number of housing units designed to accommodate their needs.

Admission To The University

The University considers all applications without regard to race, color, sex, national origin, handicapped status, age or religion. The University reserves the right to withhold the admission of any applicant who fails to meet any of the requirements for admission. In addition, it reserves the right to restrict enrollments when necessary because of budgetary or other constraints. Applications for either regular semester or the summer terms should be submitted and completed no later than the dates published in this catalog. In some programs, the vacancies will be filled several weeks prior to those deadlines.

All applicants for admission are reviewed as soon as the required credentials are received. All relevant factors are considered, with major emphasis being placed on the academic history of the applicant. The intent of the University is to offer admission to those applicants whose credentials indicate a strong likelihood for success in their selected curricula.

Not all applicants who meet the minimum requirements can be accommodated in some of the programs. Architecture, accounting, business administration, creative arts, engineering, and nursing programs have more qualified applicants than spaces to accommodate them. Thus, these programs select the best qualified from those meeting the minimal requirements.

Notification dates of admission will vary by program. The College of Architecture invites a number of its top applicants to come to the campus for an interview. The Department of Creative Arts requires an interview or audition. Consequently, notification of admission to these will be later than for other programs. Applicants to most programs may expect to receive notification of the admission decision within a month after all required credentials are received by the University.

Evidence of good physical and mental health is required prior to registration. A medical report form is sent to successful applicants along with the notice of admission.

Persons seeking application forms and information should address inquiries to:

UNDERGRADUATE PROGRAM
Office of Undergraduate Admissions
University of North Carolina at Charlotte
UNCC Station
Charlotte, North Carolina 28223
Telephone: 704/597-2211

GRADUATE PROGRAM
Office of Graduate Admissions
University of North Carolina at Charlotte
UNCC Station
Charlotte, North Carolina 28223
Telephone: 704/597-2211

Requirements For Undergraduate Admission

GENERAL REQUIREMENTS FOR UNDERGRADUATE ADMISSION

1. Application in writing to the Undergraduate Admission Office.
2. Satisfactory evidence of good character.

3. Satisfactory record of scholastic achievement.
4. Application fee of $15, which is neither deductible nor refundable.
5. The applicant bears the responsibility for supplying the University with all required credentials.

ADDITIONAL ADMISSIONS REQUIREMENTS FOR FOREIGN APPLICANTS

1. Submission of Official Scores on the Test of English as a Foreign Language or the Michigan Test, if the applicant is from a non-English speaking country.
2. A Certificate of Financial Responsibility must be filed showing the applicant's financial resources during his/her stay in the United States.
3. Under no circumstances will an I-20 form be issued until the applicant has been admitted to a degree program.

REQUIREMENTS FOR CONSIDERATION FOR ADMISSION TO FRESHMAN STANDING

1. Transcript of secondary school study which identifies the applicant as a graduate of an accredited secondary school and bears a recommendation by a school official. The record should show the grades through the eleventh year, senior year courses in progress, rank in class and pertinent test data. A high school equivalency certificate may be submitted in lieu of a secondary school diploma.
2. Applicants for admission must present 16 acceptable units, 13 of which are to be academic (college preparatory) courses and are expected to include four units of English, three units of algebra and geometry, two units of social science, one unit of natural science, and two units of a foreign language. *Students admitted to the University who have not completed the expected units in mathematics and a foreign language will be required to complete appropriate courses in these areas during their first year of study at UNCC.*

Foreign Language. Students who have not completed the expected secondary school units of a foreign language may fulfill that requirement by successfully completing two semesters of an elementary language offered (1) during their first year of study at UNCC or (2) in the summer program of an accredited college or community college prior to enrollment at the University. Students receive university course credit for these courses.

Mathematics. Students who have not completed the expected secondary school units in mathematics may fulfill that requirement by successfully completing appropriate courses offered (1) in the summer programs of secondary schools, community colleges and technical institutes prior to enrollment at the University or (2) during their first year of study at UNCC. Students who have above average grades in secondary school mathematics may enroll in an entry level mathematics course at the University which will fulfill the secondary school requirement and for which the student will receive university credit. It is recommended that students with average grades and students who have not had mathematics for more than four years consider taking a lower level course. Although the University does not offer or award credit for pre-college courses, such courses are readily available from nearby institutions. The Admissions Office will provide information upon request.

3. An *official* score report from the American College Testing Program (ACT) or the Scholastic Aptitude Test of the College Entrance Examination Board (SAT).

   While the University recognizes that test scores may be less important than academic history in predicting the chances for collegiate success, applicants are expected to meet minimum score requirements and present a satisfactory combination of secondary school class rank and SAT or ACT scores. Generally, it is expected that applicants will rank in the upper half of their graduating classes and present either a total SAT score of 800 with neither

the Verbal nor the Math scores below 350 or a composite ACT score of 18 with neither the English nor the Math scores below 16.

Students may obtain test information and application forms from their school counselors or by writing to:

American College Testing Program
P.O. Box 168
Iowa City, Iowa 52240
(UNCC Code — 3163)

Educational Testing Service
P.O. Box 592
Princeton, New Jersey 08540
(UNCC Code — 5105)

4. Transfer applicants who present fewer than 24 hours of transferable work are considered *applicants for freshman standing* and, in addition to the requirements listed above, they must have attained at least a C average in their post-secondary study, as evidenced by official transcripts mailed directly to the Office of Undergraduate Admissions by each institution attended. A Confidential Statement is required from the last institution regularly attended.

Special Requirements for Acceptance into Architecture. Applicants must present algebra, trigonometry, plane and solid geometry, or the equivalent in integrated courses. They are expected to have a Math score of at least 400 on the SAT or 18 on the ACT. A personal interview and letter of intent are also required.

Special Requirements for Acceptance into Business Administration. Applicants are expected to present a Math score of at least 400 on the SAT or 18 on the ACT.

Special Requirements for Acceptance into Creative Arts. A personal interview and a portfolio, audition piece or other presentation appropriate to the field are required as part of the application for admission into Creative Arts.

Special Requirements for Acceptance into Engineering. Applicants must present algebra, trigonometry, plane and solid geometry, or the equivalent in integrated courses. They are expected to have a Math score of at least 450 on the SAT or 20 on the ACT.

Special Requirements for Acceptance into Nursing. Nursing applicants must present biology and chemistry.

Early Admission. The University will admit specially talented high school students after they have completed the eleventh grade (achieved bona fide senior status as defined by their respective school systems) provided they meet other standards required for freshman admission.

A letter of recommendation from the student's secondary school principal is required for consideration for early admission. Applicants admitted through the early admission program have usually shown outstanding ability in their overall academic performance.

Advanced Placement Course Credit (APP). Students may receive credit for Advanced Placement Program Tests of the College Entrance Examination Board in accordance with academic regulations published in this catalog. Students must request that official AP test results be sent directly to the Office of Undergraduate Admissions, (Code 5105).

REQUIREMENTS FOR CONSIDERATION FOR ADMISSION OF TRANSFER STUDENTS

Applicants who have attended other post-secondary institutions without earning at least 24 semester hours in transferable courses are considered to be applicants for freshman standing and must also meet the requirements listed in the preceding section.

1. Official transcripts must be mailed directly to the Office of Undergraduate Admissions by each post-secondary institution an applicant has attended.
2. An official secondary school transcript. (Applicants who have earned an A.A., A.A.S. or Baccalaureate degree are not required to send a secondary school transcript.)
3. Applicants for transfer admission must present a minimum academic average of C, based on *all* post-secondary courses attempted.

4. Applicants for admission to Architecture, Engineering and Nursing must meet the additional mathematics and science requirements for admission as a freshman. Those requirements may be satisfied with either appropriate high school or college courses.

Special Requirements for Acceptance into Architecture. A personal interview and a letter of intent are required for consideration for acceptance into Architecture.

Special Requirements for Acceptance into Business Administration. Applicants must present a grade point average of at least 2.5 (on a 4.0 scale) for acceptance into the College of Business Administration.

Special Requirements for Acceptance into Creative Arts. A personal interview and a portfolio, audition piece or other presentation appropriate to the field are required as part of the application for acceptance into Creative Arts.

Special Requirements for Acceptance into Criminal Justice. Graduates of two-year institutions who wish to enter the General concentration, which is one of the four concentrations offered in the Criminal Justice Program, must have earned an A.A.S. degree with a major in a criminal justice area.

Upon acceptance of the A.A.S. degree, the successful applicant may be granted up to 64 semester hours which are valid only toward the General concentration.

Special Requirements for Acceptance into Engineering Technology. Technical institute graduates who wish to enter the engineering technology program at the University of North Carolina at Charlotte must meet the following requirements:

(1) Earn an Associate in Applied Science degree, or its equivalent, in a field appropriate to the option which the student plans to enter.

(2) Achieve an overall quality-point average of at least 2.2 (based on the 4.0 scale) on all courses taken at the technical institute. Exceptions to this requirement will be considered on the basis of individual merit.

(3) Complete satisfactorily the prerequisite background courses for the option which the student plans to enter.

Acceptance of the A.A.S. degree indicates the acceptance of 64 semester hours toward the Bachelor of Engineering Technology degree only. These hours become invalid when a student transfers to any other degree program.

Special Requirements for Acceptance into Nursing. Applicants must present a grade point average of at least 2.5 (on a 4.0 scale). Registered Nurses who are currently licensed to practice in North Carolina may be admitted to the Pathway Program, an upper division program leading to the Bachelor of Science in Nursing degree, by meeting special requirements published in the Nursing section of this catalog.

READMISSION OF FORMER STUDENTS

A student must make application for readmission to the University if he/she did not complete the last *regular* semester, fall or spring, prior to the semester or summer term for which he/she wishes to register. Applications should be filed at the Undergraduate Admissions Office in accordance with the published application dates.

Readmissions decisions are based on a review of the student's complete University record, with major emphasis given to the academic history and the probability for success in the major department and in terms of the general degree requirements.

Second Baccalaureate Major. Students who have earned a bachelor's degree from UNCC may apply for readmission into a program leading to a second major. See requirements listed below.

Two Year Rule for Engineering Students. Any engineering student who has been suspended for academic reasons from UNCC is eligible for *one* readmission to engineering after a minimum period of two years from the last semester of enrollment at UNCC. At the time of readmission, the student must elect one of the following options:

1. All courses previously attempted at UNCC are used for the determination of his or her quality point average. However, for the calculation of the student's quality point average at the time of readmission, the quality points for any course which has been repeated because of an initial *D* or *F* grade shall be based only on the last grade assigned with the associated "hours attempted" counting only once.
2. Only those courses for which the student has received a grade of C or better can be used to satisfy degree requirements. His or her quality point average will be based only on work attempted after readmission. Eligibility for continued enrollment is determined as in the case of transfer students.

A student who voluntarily left UNCC and has not attended UNCC for two or more years is eligible for readmission and may exercise either of the preceding options at the time of readmission.

To qualify for honors or high honors, a student must complete at least 48 hours in residency in computing the quality point average after readmission to UNCC.

ADMISSION FOR SECOND BACCALAUREATE DEGREE

Students who have earned bachelor's degrees from UNCC or other accredited institutions may apply for admission to a program leading to a second degree of the same level if the following requirements are met:

1. Application in writing must be made to the Undergraduate Admissions Office in accordance with the published application dates.
2. The major field selected must be different from that of the first degree.
3. The degree sought must be different from the first when that degree was granted by UNCC.
4. Applicant must meet the requirements for acceptance into the selected field.

OTHERS ELIGIBLE FOR ADMISSION

Auditors. With the consent of the instructor, any student eligible for admission to the University may register as an *auditor* for any class in which space is available. The fees and procedures are the same as those for a credit enrollment. (See page 62 of this catalog concerning academic regulations.)

Escrow Program Participants. The Escrow Program provides an opportunity for highly qualified students to take college credit courses while enrolled in secondary school. Records of credit earned will be maintained for use at the University or at another institution of higher learning.

Applicants recommended for participation in the program usually have shown great ability in particular academic areas. The recommendations are normally made through the office of the superintendent of the school district.

Requests for additional information and application blanks should be directed to the Office of Undergraduate Admissions at UNCC.

Senior Citizens. Residents of North Carolina who have attained the age of 65 and who meet applicable admission standards may enroll tuition-free on a space-available basis. Senior citizens who enroll in the Creative Arts Department's offerings will be obligated to pay the special fees which are assessed all students who enroll in the department. Interested persons should contact the Office of Undergraduate Admissions.

Non-degree Students. Non-degree students are those who are not candidates for degrees and who do not file complete academic credentials. They may enroll in undergraduate courses at UNCC until they have attempted a total of 18 semester hours with grade evaluation, but regular degree students will have preference for a place in classes. They are expected to conform to the standards required of all students. After reaching the 18-hour limitation, non-degree students must be reviewed and be acceptable for regular degree status before enrolling again at UNCC.

Non-degree students who have done previous college work (including UNCC) must be eligible to return to the institution last attended.

The student must be 18 years of age or over and must understand at the time of his registration that the work completed in non-degree student status will be evaluated in terms of major department and degree requirements only after the student's formal admission to a degree program.

Transient Students (Visitors). Students enrolled at other colleges and universities who have written permission from their institutions to take specified courses at the University in a given semester or term may be admitted as transient students on a space available basis.

Requirements For Graduate Admission

ADMISSION CLASSIFICATIONS

Admission to one of these categories does not imply and should not be confused with later admission to candidacy for a graduate degree.

Full Standing. Applicants who meet the general requirements for admission to graduate study plus any specific requirements imposed by the college or department of academic concentration for the degree sought will be admitted to full standing.

Conditional Standing. Conditional admission to full standing may be granted to students who have: (a) general or special deficiencies which require remedial work; (b) degrees awarded as long as six years prior to admission; or (c) a less clearly predicted chance of success according to available criteria.

Each student granted a conditional admission will be responsible for contacting his/her adviser when he/she has successfully satisfied the conditions for admission to full standing. The adviser will then be responsible for contacting the Graduate Office, in writing, concerning any change in the student's admission status.

Post-Baccalaureate Students

Students who wish to take courses beyond the baccalaureate degree for certificate renewal, for transfer to another institution, as prerequisites for admission to a graduate degree program or for personal satisfaction may be admitted as post-baccalaureate students. This classification is not open to foreign nationals who are on a student (F or J) visa.

A post-baccalaureate student who is subsequently admitted to full or conditional standing in a degree program on the basis of an approved regular application may, with the permission of his/her adviser, apply a maximum of six hours acceptably completed in the post-baccalaureate status toward a degree.

The following policies apply to students who wish to register as post-baccalaureate students:

1. Post-baccalaureate students must have a baccalaureate degree from an accredited institution of higher education.

2. Post-baccalaureate students may register for course work at any level for which they have the prerequisites.
3. Post-baccalaureate students will be subject to the academic regulations and standards required of degree students.
4. The PBS classification carries with it no implication that a student will be admitted to a degree program.
5. Post-baccalaureate students will be assessed tuition and fees based on the level of courses for which they are enrolled. If enrolled in any course for graduate credit, they will be assessed graduate fees for all courses.
6. A post-baccalaureate student who is subsequently admitted to a graduate degree program may request that a maximum of six hours completed for graduate credit be used for his/her program. All course work must be approved by the student's department and listed on the student's Admission to Candidacy form.

Unclassified Students. An applicant wishing to take more than nine hours of graduate course work and who does not intend to seek a master's degree may be admitted to full standing as an unclassified student. A completed application form, together with all supporting data, should be filed in the Graduate Office prior to the application deadline date for the term in which the applicant wishes to enroll. If such applicant meets the general criteria for admission, he/she may then be readmitted to full standing as an unclassified student.

Readmission. Students in degree programs who are in good standing and whose enrollment is interrupted for one or more academic terms should apply for readmission at least six weeks prior to the beginning of the term in which they plan to re-enroll, on a form furnished by the Graduate Office. Such applications will normally be granted without question.

Students whose enrollment is terminated for academic reasons may request readmission in accordance with academic regulations published in this catalog.

Transient Students. Students enrolled at other colleges and universities who have written permission from their institutions to take specified courses at the University in a given semester or summer term may be enrolled as transient non-degree students.

Auditors. With the consent of the instructor, any student eligible for admission may register for any class for audit. The application procedure and fees are the same as for classes taken for University credit. (See academic regulations pertaining to auditors published in this catalog.)

Non-Matriculation. An applicant admitted to a degree program who fails to enroll for the term to which admitted is presumed to have withdrawn his/her application. The application may be reinstated if the request to do so is received within two years from the originally requested term of entry. This request should be in writing and addressed to the Director of Graduate Studies at least six weeks prior to the term in which the applicant desires to register.

GENERAL REQUIREMENTS FOR GRADUATE ADMISSION AT THE MASTER'S LEVEL

1. Application in writing submitted to the Graduate Admissions Office.
2. Possession of a bachelor's degree, or its equivalent, from an accredited college or university.
3. Two official transcripts of all previous academic work attempted beyond high school sent directly to the Graduate Admissions Office from each institution attended.
4. Satisfactory test scores as specified in the section entitled "Additional Requirements for Acceptance into Specific Graduate Programs."
5. An overall quality point average of at least 2.50 (based on the 4.0 system) on all of the

applicant's previous work beyond the high school. The average of the major or basic courses prerequisite to the area of proposed graduate study should be 3.0 or better.

6. At least three evaluations from persons familiar with the applicant's personal and professional qualifications.
7. An essay describing the applicant's experience and objective in undertaking graduate study.
8. Acceptance into a specific program must be approved by the department or college offering the program. Meeting minimum requirements for admission does not guarantee acceptance into a program. The University reserves the right to restrict enrollments when necessary because of budgetary and other constraints including the availability of faculty expertise in a specified area of study and the enrollment limitation established by the North Carolina General Assembly.

Students who meet the foregoing requirements but do not wish to enroll in a specific degree program may be admitted to full standing as unclassified students.

Certain other applicants who satisfy prerequisites for specific courses may be admitted to those courses as post-baccalaureate students though they may not meet all the foregoing requirements. Students admitted as post-baccalaureate students who later wish to qualify for full standing must reapply for the new classification.

A person will be considered for admission to a degree program only after the application and all its supporting credentials have been filed with the Graduate Admissions Office. Any supporting credentials that are submitted without an application will be maintained on file in the Graduate Admissions Office for one year. Applications with supporting credentials will be maintained on file for two years for individuals who are admitted to degree programs but who do not enroll in the term for which their admission was processed. The applications and supporting credentials for individuals who are found not to be admissible to degree programs will be maintained on file for one year. Persons who do not submit their materials in time to be considered for admission in the term which they have requested are expected to notify the Graduate Admissions Office if they wish to be considered for admission to any subsequent term.

GENERAL REQUIREMENTS FOR GRADUATE ADMISSION AT THE SIXTH-YEAR LEVEL FOR THE CERTIFICATE OF ADVANCED STUDY (CAS)

1. Master's degree and *B* average or better.
2. "G" Certificate in appropriate area/or equivalent.
3. Satisfactory scores from the aptitude portion of the Graduate Record Examination or the Miller Analogies Test.
4. Recommendations and/or nominations from professionals who know of the applicant's work.
5. An essay describing recent professional experience in roles related to the position for which advanced certification is sought.
6. Professional experience including some in the area for which advanced certification is sought.
7. Applicants may be interviewed on submitted materials and areas of interest.

ADDITIONAL ADMISSIONS REQUIREMENTS FOR FOREIGN APPLICANTS

1. Submission of Official Scores on the Test of English as a Foreign Language or the Michigan Test, if the applicant is from a non-English speaking country.

2. A Certificate of Financial Responsibility must be filed showing the applicant's financial resources during his/her stay in the United States.
3. Under no circumstances will an I-20 Form be issued until the applicant has been admitted to a degree program.

All applicants submitting transcripts from non-U.S. educational institutions should note that some bachelor's degrees given by non-U.S. schools are not equivalent to the American bachelor's degree. Recipients of these degrees are not eligible for graduate study at the University of North Carolina at Charlotte.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO SPECIFIC GRADUATE PROGRAMS LEADING TO THE MASTER OF ARTS (M.A.) DEGREE

English

1. Thirty hours of undergraduate course work in English beyond the freshman level approved by the Department of English.
2. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or on the Miller Analogies Test.

Geography

1. An overall grade point average of at least 2.8 (4.0 system) on the last 60 semester hours (90 quarter hours) attempted.
2. A grade point average of 3.0 in the undergraduate major, whatever it may be.
3. A satisfactory total score on the Aptitude Portion of the Graduate Record Examination or satisfactory scores on both the Miller Analogies Test and the Doppelt Test of Mathematical Reasoning.
4. An undergraduate major in geography is *not* required. In order to ensure competence in the basic concepts and methodologies of geography, however, the department expects each incoming student to either possess or establish a proficiency with materials offered in several undergraduate courses.

   For students in the Location Analysis and the Urban-Regional Analysis and Planning concentrations, these courses are GGY 105 (Human Location), GGY 202 (Cartography), and GGY 203 (Research Methods).

   The relevant courses for the Environmental Analysis concentration are ES 101 (Earth Science-Geography), ES 102 (Earth Science-Geology), GGY 202 (Cartography), and GGY 203 (Research Methods).

   Deficiencies may be removed after admission by either taking the appropriate course or through examination.

Students may enter during any semester. All applications for admission that satisfy general University admission requirements will be reviewed by a Departmental Graduate Advisory Committee for a final decision. Upon admission, each student will be assigned to an adviser who will work with the student in designing a program of study. All potential applicants are encouraged to visit the department for an interview.

History

1. All applications for admission must be approved by the Graduate Committee of the Department of History.
2. Although an undergraduate major in history is not required, substantial preparation in

history or related fields, i.e., political science, foreign languages, English, will weigh heavily.

3. A satisfactory score is required on the Aptitude Portion of the Graduate Record Examination.
4. The Department reserves the right to admit with specific conditions or to establish prerequisites for admission for applicants who do not clearly meet every requirement for admission.

Mathematics

1. Applicants must present evidence of the satisfactory completion of at least 27 semester hours of mathematics approved by the Departmental Graduate Committee.
2. A satisfactory score is required on the Aptitude Portion of the Graduate Record Examination.
3. It is recommended that the student have a basic knowledge of at least two of the areas of algebra, real analysis, and topology.

Mathematics Education

1. Eighteen hours of approved undergraduate work in mathematics.
2. Evidence of satisfactory scope and grade point average in undergraduate courses in professional education.
3. Possession of a North Carolina Class "A" teacher's certificate or the equivalent. An applicant may be admitted on the condition that he/she satisfy the Class "A" requirements early in his/her course of study. Work applied to correct the Class "A" deficiency may not be applied toward the degree.
4. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or the combination of the Miller Analogies Test and the Doppelt Test of Mathematical Reasoning.

Psychology

1. A minimum of 18 hours of undergraduate psychology, including general psychology, research methods and statistics.
2. A minimum overall undergraduate grade point average of 2.8 (on a 4.0 scale) and at least a 3.0 average in all psychology courses attempted.
3. Satisfactory scores on the Aptitude and Advanced Psychology portions of the Graduate Record Examination.
4. Three letters of recommendation from professors and/or employers.
5. A statement of professional career goals limited to 500 words.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO SPECIFIC PROGRAMS LEADING TO THE MASTER OF SCIENCE (M.S.) DEGREE

Biology

1. Evidence of undergraduate preparation in biology with a minimum of 24 semester hours in biology and 24 semester hours of cognate sciences.
2. A satisfactory score on the Aptitude Portion of the Graduate Record Examination.

Chemistry

1. Students judged by the department to be deficient in their training may be admitted conditionally.

2. As an aid in identifying such deficiencies, placement examinations will be given by the department each semester just prior to registration.
3. Any deficiencies will be removed within one year by remedial study as directed by the department.

Criminal Justice

1. Each applicant must be approved by the Graduate Committee of the Department of Criminal Justice.
2. A minimum overall grade point average of 2.75 (based on 4.0 system) on all the applicant's previous college work.
3. A percentile score of at least 25 on the Aptitude Portion of the Graduate Record Examination or the Miller Analogies Test.
4. An undergraduate major in criminal justice is *not* required. In order to insure competence in the basic concepts of criminal justice, however, the department expects each incoming student to either possess or establish a proficiency with the materials offered in the three courses required for undergraduate major:
   1. CJ 300 — General Criminal Justice
   2. CJ 301 — Criminal Justice Theory
   3. CJ 302 — Research Methods in Criminal Justice

   The Admissions Committee shall assess the academic background of each applicant and, in those cases involving deficiencies in these areas, may indicate remedial action to be required of the student.
5. In addition to the statement of professional career growth and description of any significant work experience, the applicant may provide any written materials which he/she wishes to have considered in the admission decision.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAM

1. A generally satisfactory undergraduate record from an accredited college or university.
2. A satisfactory score on the Graduate Management Admissions Test administered by the Educational Testing Service of Princeton, New Jersey.
3. A description of any significant work experience.

Applications should be completed *at least three months* prior to the semester in which the applicant expects to enroll.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF HUMAN DEVELOPMENT AND LEARNING (MHDL) DEGREE PROGRAM

1. Students must present evidence of satisfactory scope and grade point average in courses in human development and/or professional education and a satisfactory scope and grade point average in courses appropriate to the cognate concentration.
2. Possession of a North Carolina Class "A" teacher's certificate or the equivalent. (This requirement is waived for admission to the Counseling and Guidance program.) Applicants may be admitted on the condition that they satisfy the Class "A" requirements. Work applied to correct the Class "A" deficiency may not be applied toward the M.H.D.L. degree.
3. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or the Miller Analogies Test.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF SCIENCE IN ENGINEERING (MSE) DEGREE PROGRAM

1. Evidence of satisfactory undergraduate preparation in engineering, usually manifested by the possession of a baccalaureate degree in some area of engineering.
2. Applicants with baccalaureate degrees from fields other than engineering (e.g., engineering physics, chemistry, mathematics, etc.) may be considered for admission to graduate study on a conditional basis. In engineering, such an applicant will be required to remove deficiencies in his or her engineering background as delineated by the department of engineering in which the applicant wishes to pursue his or her major area of study.
3. All conditional admissions are subject to the approval of the College's Engineering Graduate Committee (EGC). Also, subsequent evaluation of such students after completion of 12 hours of graduate work is subject to the approval of the EGC, as are requests for re-admission.
4. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or on the combination of the Miller Analogies Test and the Doppelt Test of Mathematical Reasoning.
5. Acceptability for admission is based upon the applicant's records and background as determined by the department of the College of Engineering in which the applicant wishes to pursue his or her major area of study. The department has the prerogative to accept the applicant without reservation, to accept the applicant with conditions, or to reject the applicant. Any conditions are to be clearly stated and agreed to by the applicant before admission is completed.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF SCIENCE IN NURSING (MSN) DEGREE PROGRAM

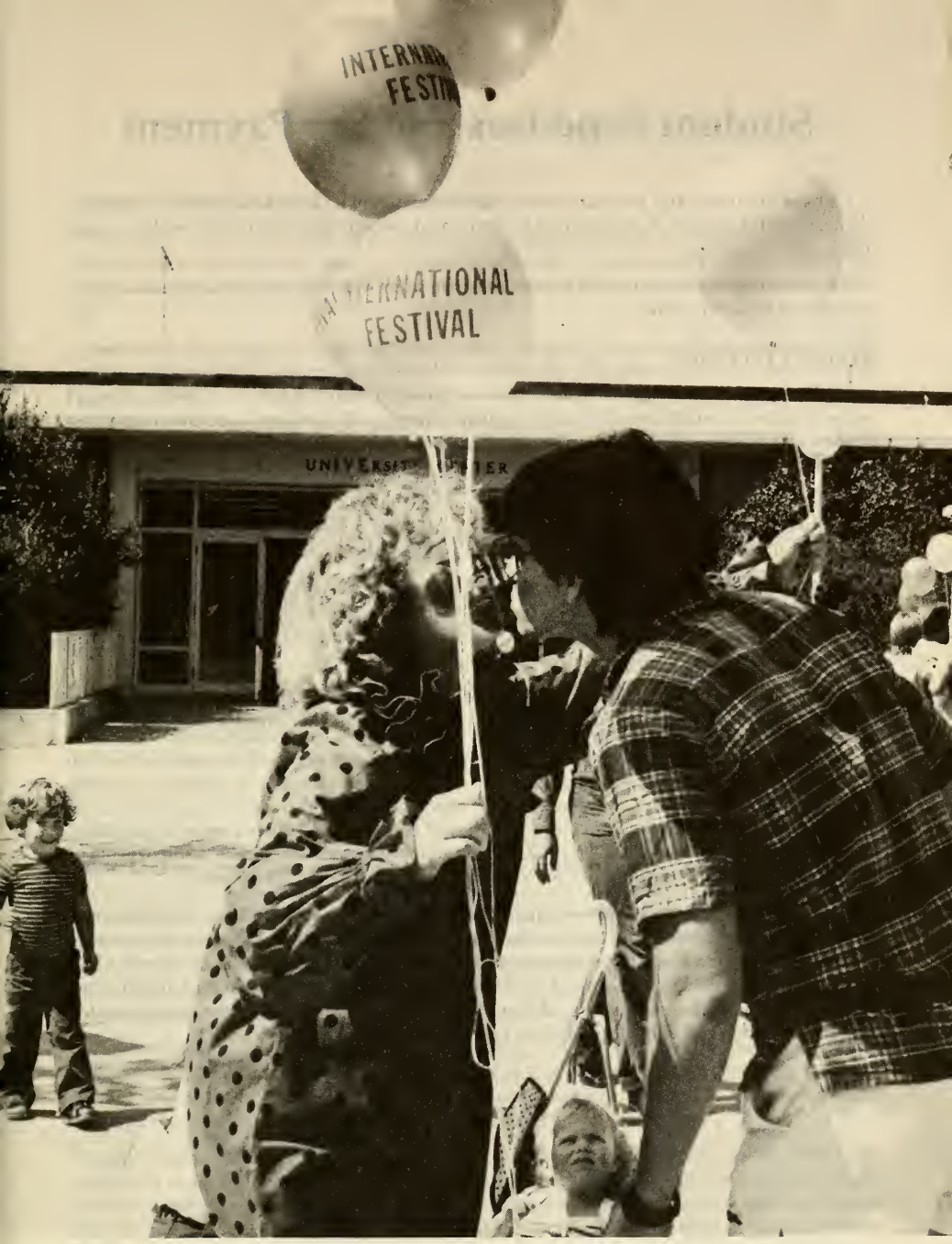
1. Current licensure as a Registered Nurse in North Carolina.
2. Baccalaureate degree from a National League for Nursing accredited nursing program.
3. A score of at least 1000 on the aptitude portion of the Graduate Record Examination with at least 400 on both the verbal and quantitative tests.
4. One year of professional nursing practice.
5. An overall quality point average of at least 3.0 (in a 4.0 system) on the last 60 semester hours attempted.
6. A quality point average of at least 3.0 in the nursing major.
7. Completion of baccalaureate courses in statistics and research methods with a grade of C or better.
8. Three letters of recommendation including one from most recent employer and one from an instructor in the baccalaureate program from which the student graduated, and one other professional reference.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF URBAN ADMINISTRATION (MUA) DEGREE PROGRAM

1. A percentile score of at least 25 on the Aptitude Portion of the Graduate Record Examination or on the Miller Analogies Test.

NOTE:

Acceptance into one graduate program does not guarantee acceptance into any other program. Acceptance into each program must be approved by the department or college offering the program.



Financial Information

Student Expenses and Fee Payment

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student must pay a higher rate of tuition than a legal resident.

The University reserves the right to make, with the approval of proper authorities, changes in tuition and fees at any time.

STUDENT EXPENSES

Graduate students taking nine or more semester hours and undergraduate students taking 12 or more semester hours of work during a regular semester will be charged full tuition and fees. Students taking fewer than the nine hours for graduates and 12 hours for undergraduates will be charged a prorated portion of tuition and fees as specified in the fee schedules on page 47.

Costs for the regular academic year for a typical full-time North Carolina student are $626 in tuition and fees and $1,672 to $2,034 for housing and food depending on the options chosen. For a typical out-of-state student, annual tuition and fees are $2,414.

The estimated average cost of books and supplies per semester varies by area and level of study and ranges from $75 to $190. Beginning students in architecture and engineering should allow an additional expense of $100 to $150 for drawing instruments, slide rule and supplies. Uniforms and supplies for nurses cost approximately $150.

In addition to the above, the student should take into consideration the cost of clothing, snacks, recreation, laundry, transportation, etc., in planning his/her expenses for each semester.

FEE PAYMENT

Tuition and fees are due and payable on the day of registration. Advance registration billing and due date of fees vary with the term. Checks and money orders should be made payable to the University of North Carolina at Charlotte. Visa and Master-Card are accepted.

Returned Check Policy. In the event that a check is returned by the bank, a certified letter will be sent to the maker, informing him/her that a penalty of $5 has been assessed and the account must be settled within five (5) working days or the University will consider the check to be a bad check and will process it accordingly. A hold will be placed on the student's record until the bad check is covered and the penalty is paid. The student will also be dropped from enrollment for the current session and will not be allowed to re-enroll until the check is cleared.

Tuition and Fees

RESIDENCE STATUS FOR TUITION PURPOSES

The basis for determining the appropriate tuition charge rests upon whether a student is a resident or a nonresident for tuition purposes. Each student must make a statement as to the length of his or her residence in North Carolina which UNCC evaluates in terms of the following:

Residence. To qualify as a resident for tuition purposes, a person must become a legal resident and remain a legal resident for at least 12 months immediately prior to classification. Thus, there is a distinction between legal residence and residence for tuition purposes. Furthermore, 12 months legal residence means more than simple abode in North Carolina. In particular it means maintaining a domicile (permanent home of indefinite duration) as opposed to "maintaining a mere temporary residence or abode incident to enrollment in an institution of higher education." The burden of establishing facts which justify classification of a student as a resident entitled to in-state tuition rates is on the applicant for such classification, who must show his or her entitlement by the preponderance (the greater part) of the residentiary information.

Initiative. Being classified a resident for tuition purposes is contingent on the student's seeking such status and providing all information that the institution may require in making the determination.

Parents' Domicile. If an individual, irrespective of age, has living parent(s) or court-appointed guardian of the person, the domicile of such parent(s) or guardian is, prima facie, the domicile of the individual; but this prima facie evidence of the individual's domicile may or may not be sustained by other information. Further, nondomiciliary status of parents is not deemed prima facie evidence of the applicant child's status if the applicant has lived (though not necessarily legally resided) in North Carolina for the five years preceding enrollment or re-registration.

Effect of Marriage. Marriage alone does not prevent a person from becoming or continuing to be a resident for tuition purposes, nor does marriage in any circumstance insure that a person will become or continue to be a resident for tuition purposes. Marriage and the legal residence of one's spouse are, however, relevant information in determining residentiary intent. Furthermore, if both a husband and his wife are legal residents of North Carolina and if one of them has been a legal resident longer than the other, then the longer duration may be claimed by either spouse in meeting the 12-month requirement for in-state tuition status.

Military Personnel. A North Carolinian who serves outside the State in the armed forces does not lose North Carolina domicile simply by reason of such service. And students from the military may prove retention or establishment of residence by reference, as in other cases, to residentiary acts accompanied by residentiary intent.

Grace Period. If a person (1) has been a bona fide legal resident, (2) has consequently been classified a resident for tuition purposes, and (3) has subsequently lost North Carolina legal residence while enrolled at a public institution of higher education, that person may continue to enjoy the in-state tuition rate for a grace period of 12 months measured from the date on which North Carolina legal residence was lost. If the 12 months ends during an academic term for which the person is enrolled at a State institution of higher education, the grace period extends, in addition, to the end of that term. The fact of marriage to one who continues domiciled outside North Carolina does not by itself cause loss of legal residence, marking the beginning of the grace period.

Minors. Minors (persons under 18 years of age) usually have the domicile of their parents, but certain special cases are recognized by the residence classification statute in determining

residence for tuition purposes.

(a) If a minor's parents live apart, the minor's domicile is deemed to be North Carolina for the time period(s) that either parent, as a North Carolina legal resident, may claim and does claim the minor as a tax dependent, even if other law or judicial act assigns the minor's domicile outside North Carolina. A minor thus deemed to be a legal resident will not, upon achieving majority before enrolling at an institution of higher education, lose North Carolina legal residence if that person (1) upon becoming an adult "acts, to the extent that the person's degree of actual emancipation permits, in a manner consistent with bona fide legal residence in North Carolina" and (2) "begins enrollment at an institution of higher education not later than the fall academic term next following completion of education prerequisite to admission at such institution."

(b) If a minor has lived for five or more consecutive years with relatives (other than parents) who are domiciled in North Carolina and if the relatives have functioned during this time as if they were personal guardians, the minor will be deemed a resident for tuition purposes for an enrolled term commencing immediately after at least five years in which these circumstances have existed. If under this consideration a minor is deemed to be a resident for tuition purposes immediately prior to his or her eighteenth birthday, that person on achieving majority will be deemed a legal resident of North Carolina of at least 12 months duration. This provision acts to confer in-state tuition status even in the face of other provisions of law to the contrary; however, a person deemed a resident of 12 months duration pursuant to this provision continues to be a legal resident of the State only so long as he or she does not abandon North Carolina domicile.

Lost but Regained Domicile. If a student ceases enrollment at or graduates from an institution of higher education while classified a resident for tuition purposes and then both abandons and reacquires North Carolina domicile within a 12-month period, that person, if he or she continues to maintain the reacquired domicile into re-enrollment at an institution of higher education, may re-enroll at the in-state tuition rate without having to meet the usual 12-month durational requirement. However, any one person may receive the benefit of this provision only once.

Change of Status. A student admitted to initial enrollment in an institution (or permitted to re-enroll following an absence from the institutional program which involved a formal withdrawal from enrollment) must be classified by the admitting institution either as a resident or as a nonresident for tuition purposes prior to actual enrollment. A residence status classification once assigned (and finalized pursuant to any appeal properly taken) may be changed thereafter (with corresponding change in billing rates) only at intervals corresponding with the established primary divisions of the academic year.

Transfer Students. When a student transfers from one North Carolina public institution of higher education to another, he or she is treated as a new student by the institution to which he or she is transferring and must be assigned an initial residence status classification for tuition purposes.

Appeal Procedure. A student may cause review of decisions by the Admissions Office or Office of the Registrar relating to in-state or out-of-state residence status for tuition purposes through the Office of the Vice Chancellor for Business Affairs.

Summary of Tuition and Fees Per Semester

(Tuition and fees are subject to change.)

UNDERGRADUATES			GRADUATES*		
	Resident	Non-Resident		Resident	Non-Resident
0 Hrs.	$ 47.00	$ 270.00	0 Hrs.	$ 47.00	$ 270.00
			0 Hrs. (Thesis Only)	85.00	170.00
1-5 Hrs.	69.50	292.50	1-2 Hrs.	69.50	292.50
6-8 Hrs.	152.50	599.50	3-5 Hrs.	115.50	562.50
9-11 Hrs.	278.00	948.00	6-8 Hrs.	199.50	869.50
12 or more Hrs.	324.00	1218.00	9 or more Hrs.	324.00	1218.00

Non-degree students who are taking* **only *undergraduate courses will pay tuition and fees at the undergraduate rate. Non-degree students taking one or more graduate credit courses will pay tuition and fees at the graduate rate for* **all** *courses.*

Room and Board Per Semester

Residence Hall Apartment ..... $496.00 to $611.00
Residence Hall — Single Room $688.50
Residence Hall — Double Room $461.00
Meal Plan A — 5 Day $467.00
Meal Plan B — 7 Day $512.00

Note: Residence hall space generally is not available to married or part-time students.

Special Assessments

Creative Arts Fee ..... $35.00 to $50.00
Nursing Malpractice Insurance (per academic year) $13.13
National League for Nursing Achievement Test (per-test) ..... $ 5.00
Scuba Diving (PED 219) $60.00
Advance Scuba Diving (PED 220) $35.00
Physical Education Course Fees
- First Course $15.00
- Each Additional Course ..... $ 6.00

Engineering Cooperative Experience Fee $47.00
Engineering Laboratory Fee $25.00

Other Fees

Application Fee $15.00
New Student Fee (Undergraduates only) $13.00
Late Registration Fee $10.00
Graduation Fee $18.00
Credit By Exam
- Written Exam $15.00
- Laboratory Exam $25.00
- Combination Written & Laboratory Exam $30.00

Motor Vehicle Registration Fee (per academic year) $30.00

SPECIAL ASSESSMENTS

No extra fees are charged for laboratories as such. However, all students enrolled in a Creative Arts course or courses are charged either $35 or $50 depending on the type of course or courses taken. All students enrolled in Scuba Diving are charged $60 per semester for the first course and $35 for the advanced course. Physical Education course fees are $15 for the first course and $6 for each additional course. Nursing students pay $13.13 per academic year for nursing malpractice insurance and $5 for each NLN Achievement Test. Engineering students enrolling in the Cooperative Experience pay $47 per semester while the Engineering Laboratory fee is $25.

Application Fee. Applicants for admission are required to submit a $15 application fee with the application form. The fee is not deductible and is not refundable.

New Student Fee. All new degree-seeking undergraduate students (freshmen and transfers) will be required to pay a one-time $13 new student fee.

Housing Deposit. Admission to UNCC does not guarantee residence hall space. Arrangements for on-campus housing are made, after admission, with the Director of Residence Life. See the Correspondence Directory on the inside front cover for the proper address. On-campus housing is not available for married or part-time students.

All housing applications must be submitted with a $100 deposit. The deposit is refundable, minus any outstanding damages and charges, upon departure from the residence life system. No deposit refunds for fall semester are made after June 15. No refunds for spring semester are made after December 1.

All students living in the residence halls will have a $6 Residence Hall Association fee included in their semester housing charges.

Student Activities Fee. A part of the general fee provides students with a program of cultural, recreational and entertainment activities. It pays for admission to many athletic contests, dramatic productions, activities sponsored by the University Program Board, social and entertainment functions, and for subscriptions to the campus newspaper and literary magazine.

Graduation Fee. Each member of the graduating class must pay a graduation fee of $18 at the time he/she applies for the degree. This fee includes the cost of the diploma and the rental of the cap and gown. No reduction of the fee is allowed for those receiving degrees *in absentia*. For graduate students, the cost of renting a hood is in addition to the $18 charge.

Late Registration Fee. A fee of $10 will be charged for those registering after the designated registration period each semester. *This fee is not refundable.*

Applicants completing their applications before the initial registration day but whose applications could not be processed in time will not be assessed the late registration fee if required to register late.

Credit By Examination Fee. Fees for credit by examination are as follows: A written examination for a course will require a fee of $15. A laboratory examination requiring the arrangement of such things as laboratory materials will require a fee of $25. A combination of a laboratory and written examination will require a fee of $30.

MOTOR VEHICLE REGISTRATION FEES

Any student attending the University is required to register his motor vehicle(s) in order to park such vehicle(s) on campus. Only vehicles owned by the student, his spouse, his parent(s), or his guardian may be registered. Unless increased by the chancellor, the number of vehicles which a student may register is two. Presentation of State vehicle registration or appropriate proof of ownership shall be required.

Registration of motor vehicles is to be accomplished as part of the University registration at the beginning of the fall semester of each year or at the time when the student first registers in the University and at the beginning of the fall semester of each year thereafter. A motor vehicle acquired by a student during a semester is to be registered.

The motor vehicle registration fee for students, faculty and staff members is as follows:*

$30 per academic year beginning with the fall semester.

$18 for the period beginning with the spring semester and ending with the beginning of the next fall semester;

$12 for the period beginning with a summer term and ending with the beginning of the next fall semester;

$10 for each semester, Fall and Spring and Summer, in parking areas designated for night students after 4 p.m.

$ 2 for one additional motor vehicle;

$ 1 for a replacement sticker from one category to another with presentation of residue of old decal.

*Fees are subject to change

Night decals are available and are valid in any lot after 4 p.m. Cars with night decals must be parked at meters or toll gates from 8 a.m. to 4 p.m.

Temporary Parking Permits. Temporary parking permits are available for persons with cars registered on campus who are required to drive a non-registered car for a short period while the registered car is being repaired, for new employees prior to receipt of first pay check and for short-term visitors of resident students.

Penalties for Parking Violations. Violators of University Parking Regulations will incur a civil penalty of $3.00, $5.00, $10.00 or $15.00, depending on the seriousness of the violation. If not paid in five days, the penalty will be doubled and applied to the member's account with the University and collectable as a bad debt. Subsequent registration may be withheld for nonpayment.

Appeals of traffic and parking citations may be filed in accordance with the statement of procedures on file in the Office of the Director of Public Safety.

Refunds

TUITION AND FEES REFUNDS

A student who officially withdraws from the University will receive a refund as follows:

a. During the first two weeks of the semester a 90 percent refund of tuition and fees.

b. During the third and fourth week of the semester a 40 percent refund of tuition and fees.

c. After the first four weeks, tuition and fees are not refundable.

Exception: After four weeks charges are refundable by administrative action on a prorata basis for the unexpired portion of the term for the following reasons: death of the student, withdrawal for adequate medical reason as certified by the University Student Health Center or family doctor, death in the immediate family which necessitates student withdrawing and dismissal or suspension from school.

Summer School: A student who officially withdraws from the University as indicated below will receive a refund of the full amount paid less a registration fee of $10.00; regular summer session

during the first *five* class days; three week session during the first *three* class days; two week session during the first *two* class days. One half of the total housing charge is refundable during the first half of a summer session. No other refunds are authorized except as follows: death of student, withdrawal for adequate medical reason as certified by the University Student Health Center or family doctor, death in the immediate family which necessitates student withdrawing and dismissal or suspension from school.

HOUSING REFUNDS

The rental period is for the entire academic year (Fall and Spring semesters) continuing until the end of the Spring semester regardless of occupancy date after the Fall semester begins. Students may terminate at the end of the Fall semester with no penalty only by written notification to the Residence Life Office by December 1. The housing and dining agreement binds the student and/or guarantor to the full amount of charges for the academic year except as noted below:

Written Notice of Cancellation Received in Residence Life Office:	**Refund Forfeiture:**
Prior to June 15 for fall semester, or prior to December 1 for spring semester	Full refund
June 15 — published residence hall opening date (fall) December 1 — published residence hall opening date (spring)	Refund, less $100 deposit forfeiture
Residence hall opening date to end of semester, if another student contracts for the space	Refund, less $100 deposit forfeiture, $50 late cancellation charge, and pro-rata share of housing and dining costs (based on number of weeks through date of cancellation)
Residence hall opening date to end of semester, if no other student contracts for the space	Refund, less $100 deposit forfeiture, plus late cancellation charge (residence halls: $100, apartments: $150) and pro-rata share of housing and dining costs (based on number of weeks through date of cancellation)

Appeal Procedure

A student may cause review of decisions relating to refunds through the Office of the Vice Chancellor for Business Affairs.

Financial Aid

UNCC administers financial aid without regard to race, sex, color, creed or national origin.

The University offers a comprehensive program of student financial aids (scholarships, grants, loans and part-time employment) to assist both graduate and undergraduate students in meeting educational expenses. Reasonable educational expenses include tuition and fees, room and board, books, supplies, transportation, miscellaneous personal expenses and expenses related to maintenance of a student's dependents.

Eligibility. The programs of student financial aid are administered according to a nationally accepted policy that the family, meaning parents (or those acting in place of parents) and/or spouse, is responsible for a student's educational expenses. Therefore, eligibility for financial aid will be determined by a comparison of a budget (educational expenses as defined above) for the period of attendance with what the student's family can reasonably be expected to contribute.

A financial aid applicant will be considered for available assistance for which he/she is eligible if the student:

1. Completes the application process and related forms only after thoroughly reading all instructions.
2. Completes the admission application process and is accepted for enrollment at UNCC.
3. Is working toward a degree and not simply taking courses.

APPLICATION PROCESS

It is necessary to complete one form to apply for the following programs:

Basic Educational Opportunity Grant (Pell Grants) (Undergraduates only)
Supplemental Educational Opportunity Grant
Nursing Grant (Undergraduates only)
UNCC Grants
North Carolina Student Incentive Grant (NCSIG)
National Direct Student Loan
Nursing Loan
UNCC Loans
College Work Study Program
UNCC Scholarships

To apply for these programs, a student *must complete the Financial Aid Form of the College Scholarship Service* and mail it to that organization in Princeton, New Jersey. These forms are available in the UNCC Financial Aid Office and in High School Counseling Offices.

Certain UNCC scholarships require special application forms which are available in the UNCC Student Financial Aid Office.

RENEWAL PROCESS

Renewal of financial aid is based upon a student's making a clearly satisfactory record. The Financial Aid Form will be required each year that a student applies for financial aid.

FINANCIAL AID PROGRAMS

Loans

National Direct Student Loan — Applicants may request amounts based on financial need up to a total of $6,000 for a four-year degree and an aggregate total of $12,000 for graduate study. The interest rate is five percent, with repayment beginning six months after graduation. To apply, an individual must complete the Financial Aid Form.

Federally Insured Student Loans and Guaranteed Student Loans — Qualified applicants may borrow up to $2,500.00 per year for educational expenses. The interest rate throughout the life of the loan is nine per cent per annum, simple interest. Repayment begins after a student completes his course of study or leaves school. The maximum repayment period is 10 years, although minimum repayment requirements may reduce this.

Short-Term Emergency Loans — Students may borrow up to $100 for unanticipated expenses which occur during the semester and up to $400 for tuition and book expenses. The loans have a $1 service charge, but no interest is charged. Loans must be repaid within 30 to 60 days. Funds for these loans are privately donated and include the following:

Alpha Delta Kappa, N.C. Alpha Chapter
Charlotte — North Rotary Club
R.P. Stephen Davis Memorial Fund
English Graduate Student Loan Funds
Housewares Club of the Carolinas
International Student Loan Fund
Kappa Alpha Psi Fraternity
Marlin McCasland Memorial Fund
Ada Pearson Fund
Schoenith Student Loan Fund
UNCC Distaff Club

Student Financial Services — This office is financed and operated by the Student Government Association and offers short-term loans and check cashing privileges.

Grants

Basic Educational Opportunity Grant (Pell Grants) — These are for undergraduate students and can range from $200 to $1,800, based on the student's financial need, state residency and other costs of attendance. It is an entitlement program, meaning that any student who applies and is determined to be eligible will receive funds.

Supplemental Educational Opportunity Grant — These are for undergraduate students and range from $200 to about $1,000. Eligibility is based on financial need and is determined within the UNCC Financial Aid Office.

North Carolina Minority Presence Grant Program — Under the University of North Carolina Board of Governors general Minority Presence Grant Program, black students may be eligible for special financial assistance if they are residents of North Carolina, enrolled for two or more courses in a degree program, and demonstrate financial need.

UNCC Grants — UNCC administers several other grant programs funded by the State of North Carolina and requires North Carolina residency for consideration. These are available to both graduate and undergraduate students.

Graduate Assistantships. The University has a limited number of graduate assistantships in the fields of biology, chemistry, engineering, political science, mathematics, geography and human development and learning. Such financial support will be extended to other areas of study as rapidly as resources become available. Application for a graduate assistantship should be filed in writing with the appropriate department through the Graduate Admissions Office not later than the February preceding the fall semester for which the assistantship is desired.

Graduate Fellowships. The Microelectronics Center of North Carolina (MCNC) has allocated a limited number of $10,000 fellowships to UNCC for outstanding students in graduate programs relevant to microelectronics. Information about MCNC Fellowships is available from the Graduate Admissions Office.

Employment. The Office of Student Financial Aid assists students in locating work on campus. The University participates in the federal Work-Study Program and attempts to match students with jobs related to their academic interests. Graduate students as well as undergraduate students may request University employment. However, all graduate students seeking employment must have the approval of their department heads.

The Placement Office assists students in obtaining part-time, full-time or summer employment off campus and, whenever possible, endeavors to relate work experience to career objectives. (See more detailed statement under *Placement*, page 14.)

Education For The Vocationally Handicapped. Students who have suffered a disability which renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services which include vocational counseling and guidance and placement. Payment of expenses such as training, medical treatment, room and board, books, fees and tuition may be available. A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by contacting the Vocational Rehabilitation Office located at 219 East Boulevard, 375-8686.

Veterans Benefits. The Office of the Registrar works with the Veterans Administration to assist in administering the various programs of benefit to veterans or eligible relatives of veterans. The veterans clerk in the Registrar's Office certifies enrollment and transmits necessary credentials and information to the proper Veterans Administrative Office.

Admission to the University should be obtained before the student makes application for veteran's benefits. Application for a Certificate of Eligibility should be made to the nearest Veterans Administration Regional Office at least six weeks before the expected date of enrollment.

In order to be eligible for the full monthly allowance under any of the above laws, an undergraduate student must be enrolled for 12 or more semester hours of work, while a graduate student must be enrolled for nine or more semester hours. Those enrolled for fewer semester hours than the limits stated above will be eligible for part-time compensation. Students are responsible for reporting any change in enrollment status to the veterans clerk in the Office of the Registrar.

Children of Veterans. The North Carolina Department of Veterans Affairs awards scholarships for the children of certain deceased or disabled veterans. Those awarded "full" scholarships are entitled to tuition, mandatory fees, board allowance and room allowance; those awarded "limited" scholarships are entitled to tuition and mandatory fees. All inquiries should be referred to the North Carolina Department of Veterans Affairs, P.O. Box 26206, Raleigh, North Carolina 27611, telephone, Raleigh 733-3851.

Before the time of registration each eligible student who wishes to enter the University should:

1. Make application for admission following University procedures.
2. Make application for scholarship award to the North Carolina Department of Veterans Affairs.

Scholarships. UNCC offers a comprehensive undergraduate scholarships program. Some of these are awarded entirely on the basis of merit, but individual financial need is a consideration in the awarding of many of them. The University's major merit scholarships are the Alumni Merit Scholarships, the Colvard Merit Scholarships and the Bonnie E. Cone Merit Scholarships.

The *Alumni Merit Scholarships*,* awarded for the first time in 1978, will be awarded annually to continuing students of the University who have proven outstanding scholastic attainment, participated in University and/or community activities, and demonstrated campus leadership. The scholarships were established to recognize outstanding full-time students and to encourage their continuing involvement and interest in the activities of the University. Information concerning the scholarships will be distributed to each department and college within the University each year prior to the award and will contain material outlining application procedures for the scholarships.

The *Colvard Merit Scholarships** honor Dr. Dean Wallace Colvard, first chancellor of the University of North Carolina at Charlotte, and his wife, Martha, who was instrumental in founding the Friends of UNCC. Dr. and Mrs. Colvard have personified the quest for excellence at UNCC. Thus it is uniquely appropriate that their contribution to the University be given permanent

**This is not affiliated with the National Merit Scholarship Corporation.*

recognition. Chancellor Colvard came to the institution in 1966, when its enrollment was 1,715, and has seen that enrollment multiplied by five. However, his major emphasis was not upon numbers but upon quality. It was his insistence upon excellence that makes it entirely appropriate that a scholarship program based on merit be used to honor the contributions he and Mrs. Colvard have made to the University and the State.

Before he was appointed chancellor at UNCC, Dr. Colvard had served as a dean at North Carolina State University and as president of Mississippi State University. It is significant that both institutions made substantial strides toward excellence and achieved a measure of national prominence during the period in which he served.

The Colvard Merit Scholarships will be awarded to applicants judged on the basis of their achievements in high school, college aptitude tests, and their promise of making meaningful contributions to society. Their roles as leaders and their service to school and community will be weighed carefully. The scholarships will cover tuition, room and board, and fees. Colvard Scholars will be required to maintain high academic standards while attending UNCC.

The *Bonnie E. Cone Merit Scholarship** is awarded annually to students having high moral character and proven scholastic attainment and whose further education at the University will, in the judgment of the scholarship committee, enhance the citizenship of the recipient and advance the service of the University of North Carolina at Charlotte as an institution of excellence. A student may be recommended by the high school principal or community college president to be eligible for this scholarship.

For the Colvard and Cone Scholarships, detailed information about minimum qualifications, the selection process, and the amount of the stipend may be obtained from the Office of Student Financial Aid at the University of North Carolina at Charlotte.

In most cases, there is no special application for the scholarships which follow, and all aid applicants will be considered unless the scholarship is noted as an exception. Normally, those students with demonstrated need and a grade point average of 3.5 or better will be considered for scholarships.

**Alcoa Foundation
Allendale Services, Inc.
Alpha Chapter of Alpha Delta Kappa
Alpha Sigma Chapter of Delta Kappa Gamma
Altrusa Club of Charlotte
Alumni Merit Scholarship
American Business Woman — Charlotte Heritage Chapter
American Business Women — Carolina Charter Chapter
American Business Women — Mecklenburg Chapter
American Business Women — Queen Charlotte Chapter
American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
American Society for Metals
**American Society for Quality Control
Paul Anthony Memorial Scholarship
J. Murrey Atkins Scholarship
Brycie Baber Scholarship
Harold Crusius Bird
Tom Black Memorial Scholarship
*Blair-Boone-Dudley Scholarship Fund
R.G. Brice Scholarship
Cannon Scholarship for Nursing

*This is not affiliated with the National Merit Scholarship Corporation.

*Students will be informed of their eligibility to apply for these scholarships.
**These scholarships are awarded on recommendation by committees in the academic departments.

Carolina Paper Board
Carolina Yarn Association
Carrousel Award
Wayland Cato, Jr. Scholarship
Charlotte Association of Insurance Women
Charlotte Board of Realtors
Charlotte Business and Professional Women
Charlotte Civitan Club
Charlotte Engineers Club Scholarship
Charlotte Kiwanis Scholarship
Charlotte-Mecklenburg — NCEA
Charlotte North Rotary Club Student Loan Fund
Charlotte Panhellenic Congress
Charlotte Rotary Club
The Charlotte Women's Auxiliary of the NC Pharmaceutical Association
**Chick Fil-A of Southpark Scholarship in Philosophy
**Ruth C. Clarke Scholarships in Nursing
Colvard Merit Scholarship
Bonnie E. Cone Merit Scholarship
Creative Arts General Scholarship
Creative Arts Music Scholarship
Creative Arts String Scholarship
Creative Arts Theatre Scholarship
Jim Crockett Memorial Loan
**Crowder Construction Scholarship
**Cunningham Brick Scholarship
**Sanford V. Davenport Scholarship
DeLoitte Haskins & Sells Scholarship
Delta Kappa Gamma
Delta Delta Delta
**Duff-Norton Engineering
Engraph, Inc.
Engineering Students (Minority)National Fund
**English Graduate Loan Fund
**Ernst & Whinney Achievement Scholarship
Executive Women International
Henry B. Fowler Memorial
**French Scholarship
Garinger Scholarship
**Frank R. Graham, Jr., German Scholarship
Otto L. Giersch Scholarship
**Joris E. Gilbos French Scholarship
**Joris E. Gilbos German Scholarship
Miley Columbus Glover Memorial
Nicholas T. Goudes Foreign Language Scholarship
Greek Ladies Philoptochos Society Scholarship
Bronna Watson Hackney Scholarship in Nursing
Harry P. Harding Scholarship
Ailene S. Harris Engineering Scholar
Harris-Teeter Enterprise Scholarship
Harrison-Wright Scholarship
Homelite Contractors Pump Scholarship
International World Trade Scholarship

*Students will be informed of their eligibility to apply for these scholarships.
**These scholarships are awarded on recommendation by committees in the academic departments.

**Jefferson Standard Foundation Scholarship
Jeld-Wen-Wenco Scholarship
Junior Achievement
**Katapodis Award
**Kokenes Award
Lake Forest Garden Club
Lamba Chi Alpha's Witherspoon Scholarship in Religious Studies
E. Dunbar Jewell and Associates Scholarship Fund
LUWA Corporation Engineering Merit Scholarship
McEwen Scholarship
**Pierre Macy Scholarship
William Hugh McEniry Memorial
Mecklenburg County Medical Society
Cal and Fay Mitchell Scholarship
Mumaw Engineering
Mutual Savings and Loan of Charlotte, N.C., Scholarship in Business Administration
**National Association of Accountants — Herbert Conner Scholarship
National Gypsum Company — Gold Bond Building Products Division Scholarship
**North Carolina Association of the American Institute of Certified Public Accountants Charlotte Chapter
North Carolina Sheriff's Association Scholar
North Carolina Association of Supervisors of Elections
The Artemis J. Paschal Scholarship Fund
Lynn Hauser Pearce Memorial Scholarship
**Peat, Marwick, Mitchell Accounting Scholarship
Piedmont-Carolinas Chapter of the Institute of Internal Auditors
Piedmont Club Foundation
Pilot Club of Charlotte
Pneumafil Engineering Merit Scholarship
**Price Waterhouse Foundation
Cecil Prince Scholarship
**Professional Engineers Association — South Piedmont Chapter
Professional Engineers — Ladies Auxiliary
Provost-Firpo French Scholarship
Puette Scholarship
Quota Club of Charlotte
The Ramseur Tutoring Fund
George A. Rawlings Scholarship
Refabco, Inc. Scholarship
**Ramsey Products Engineering Scholarship
Rexham Corporation
George H. Roberts
Glen G. Ritchie, Jr. Memorial Scholarship
**Rodgers Builders, Inc. Scholarship
Touche Ross and Company
**Oliver Rowe Scholarship
Servomation of Charlotte
**Sheldon P. Smith Scholarship
Lonnie Sides Memorial
**Spanish Scholarship
Joseph Carl Stepp Memorial
Charles H. and Clara Stone Scholarship

*Students will be informed of their eligibility to apply for these scholarships.
**These scholarships are awarded on recommendation by committees in the academic departments.

A.K. Sutton Scholarship
Tate Culbertson Scholarship
C.M. and M.D. Suther Scholarship
Mr. and Mrs. J.R. Thompson
Travelers Insurance Scholar
UNCC Distaff Club
UNCC Bookstore Scholarship
**Robert M. Wallace Award
Lettie Pate Whitehead Scholarships
Earle Whitton Scholarship
Mr. and Mrs. J.L. Winningham
Women's Allied Auxilliary of N.C. Motor Carriers
World Trade Scholarship
Zeta Tau Alpha Foundation
Zonta Club of Charlotte

*Students will be informed of their eligibility to apply for these scholarships.
**These scholarships are awarded on recommendation by committees in the academic departments.

Academic Regulations and Degree Requirements

Student Responsibility

Every student is responsible for the proper completion of his/her academic program, for familiarity with the *University Catalog*, for maintaining the grade average required and for meeting all other degree requirements, including attendance at the commencement exercises at which he/she will receive a diploma. The adviser will counsel, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment. He/she is responsible for maintaining communication with the University by keeping on file with the Registrar's Office at all times a current address, including zip code and telephone number.

Every student, while associated with the University, is expected to comport himself/herself in campus and community life in a manner that will reflect credit upon the student and the University.

Academic Regulations

ASSIGNMENT OF ACADEMIC ADVISERS

Each student entering a degree program at the University of North Carolina at Charlotte is assigned an academic adviser or advisory committee in his/her major field. Advisers are also provided for students who have not yet chosen a major field. The adviser assists the student to develop the plan of study best suited to his/her prior preparation and objectives. This assistance is not a substitute for the personal responsibility of the student described in the preceding section.

CATALOG POLICIES

The *Catalog* is not an irrevocable contract. Regulations published in it are subject to change by the University at any time. University regulations are policy statements to guide students, faculty and administrative officers in achieving the goals of the institution. Necessary interpretations of these policies will be made by the appropriate authorities with the interest of the students and the institution in mind. Students are encouraged to seek information as they require it about the application of any policy.

Each new edition of the catalog becomes effective at the opening of the fall semester following its publication. To receive a degree, an undergraduate student must complete satisfactorily all requirements described in the catalog in effect at the time of first enrollment as a degree student at the University or all requirements described in the catalog in effect at the time of graduation. A graduate student must complete satisfactorily all requirements described in the catalog in effect at the time of first enrollment as a degree student or all requirements described in the catalog in effect at the time of admission to degree candidacy. Any student who leaves the University or changes to another curriculum for a period of one calendar year or longer and then returns to the University or to the original curriculum will be required to meet catalog requirements in effect at the time of return.

Exceptions to these policies may be necessitated by changes in course offerings, degree programs or by action of authorities higher than the University. In that event, every effort will be made to avoid penalizing the student.

REGISTRATION

The registration process takes place on designated days at the opening of each semester and each summer term prior to the beginning of classes. In addition, students who are already enrolled are given the opportunity to register in advance for the subsequent term during each regular semester. New undergraduate students who participate in one of the summer orientation and advising sessions are registered for the following fall semester during the session.

Late Registration. Late registration takes place on designated days after the beginning of classes each term. Except under special conditions, no student will be permitted to register after the last day of late registration as announced in the calendar for each semester and summer term. A late registration fee will be charged.

Registration for Credit. No credit will be awarded to a student for a course unless he/she is properly registered for it. Graduate credit will not be awarded unless the student is properly registered in a course which has been approved for graduate credit.

Adding or Dropping a Course. In order to add or drop a course after the registration period, a student must secure written permission from his/her adviser and complete the procedure as prescribed by the Registrar's Office. No student will be permitted to add a course, change sections of a course, change the grading option for a course or change the audit/credit designation of a course after the last day of late registration as announced in the calendar for each semester and summer term.

A student who drops a course after the last day to receive a refund and drop without evaluation will receive a grade of W. No student will be allowed to drop a course after the deadline for dropping a course as announced in the academic calendar for each semester or summer term unless there are extenuating circumstances and the drop is approved by the student's adviser and the dean of the college in which the student is a major. A student who is taking only one course must withdraw officially from the University if he/she drops the course.

Withdrawal. Any student voluntarily leaving the University before the close of the term must withdraw officially. A student initiates the withdrawal procedure at the Registrar's Office and files the completed form at the Dean of Students Office. Non-degree students and evening students may complete the process in the Registrar's Office. A student who is unable to appear in person may notify the Registrar's Office of withdrawal by letter. A withdrawal is effective when the form or letter is received by the Dean of Students or Registrar's Office. A student who withdraws from the University will receive the grade of *W* for all courses in progress. In order to return to the University, the student must apply and be accepted for readmission.

Any student who leaves the University before the close of a term without withdrawing officially will receive a failing or unsatisfactory grade (F for undergraduate credit and U for graduate credit) in each course for which he/she is registered. Enrollment will be terminated for any graduate student who receives a U and he/she will be required to reapply for admission.

Two weeks prior to the last day of class (or a proportionate period for summer school) is the last date withdrawn transactions are to be processed. Students who withdraw after that date will receive a grade of *F* or *U*.

Dual Undergraduate/Graduate Registration. Undergraduate students at the University of North Carolina at Charlotte, who, by written request to the director of graduate studies, accompanied by the regular application form and supporting credentials, indicate that they plan to undertake graduate study and who, in the last semester of residence, are required to take fewer than 12 semester hours of undergraduate work to fulfill all requirements for the bachelor's degree may be allowed during the final semester to enroll in certain courses for the purpose of obtaining graduate credit, provided prior approval is granted on a Special Request Form by the student's undergraduate academic adviser, the instructor(s), the dean of the college(s) in which the graduate course(s) is offered and the director of graduate studies, in that order. The total hours to be carried in this status shall not exceed 12 hours, of which no more

than nine may be for graduate credit. On the basis of work attempted prior to the final semester, such student must meet the grade point criteria for admission to a graduate degree program at the University. No course for which credit is applied to an undergraduate degree may receive graduate credit. Permission to take graduate courses under dual registration does not constitute admission to any graduate degree program at the University.

Consortium Registration. The Charlotte Area Educational Consortium offers an interinstitutional registration during the fall and spring semesters for *undergraduate* students at the following institutions:

Barber-Scotia College
Belmont-Abbey College
Central Piedmont Community College
Davidson College
Gaston College
Johnson C. Smith University
Queens College
Sacred Heart College
UNCC
Wingate College
Winthrop College

Under this program, a full-time undergraduate student may take courses *not offered at UNCC* at one of the other participating institutions and have them appear on his/her transcript and be computed in his/her quality point average at UNCC. The registration process is initiated in the Registrar's Office and requires the approval of the student's academic adviser and college dean.

Inter-Institutional Registration. An inter-institutional registration program is available for a limited number of undergraduate and graduate students with the University of North Carolina at Chapel Hill, Duke University, University of North Carolina at Greensboro and North Carolina State University. The registration process is initiated in the Registrar's Office and requires the approval of the student's academic adviser and college dean.

Auditors. With the consent of the instructor, any person eligible for admission to the University as either an undergraduate or graduate student may register as an *auditor* for any class in which space is available. Fees and procedures are the same as those for a credit enrollment.

The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit but they are expected to attend class regularly. A formal record of the audit on the student's transcript is entered at the discretion of the instructor at the end of the course. The procedure for adding or dropping an audit course is the same as for credit enrollments.

COURSE LOAD

Undergraduate. A course load of 15 semester hours constitutes a normal full semester program for undergraduates, but a student may register for less work. A student enrolled in 12 or more semester hours is considered to be a full-time student by the University.

An appropriate course load is dependent on two factors: the scholastic ability of the student as reflected by his/her academic history and available study time. It is suggested that a student whose part-time employment totals 20 hours a week should not carry more than 10 semester hours. A student working 40 hours a week should not carry more than seven semester hours. Generally, an undergraduate student should not register for more than 18 semester hours during a semester.

Graduate. A course load of nine semester hours constitutes a normal full semester program for a graduate students. The graduate student's load should be lower than the normal undergraduate load to encourage extensive reading, independent thinking and appropriate individual research. Generally, graduate students should not register for more than 12 semester hours during a semester.

An appropriate course load is dependent upon two factors: the scholastic ability of the student as reflected by his/her academic history and the time available for study. Full-time professional public school employees are limited to one course each semester during the academic school year. Others whose full-time employment totals 40 hours a week should not carry more than seven semester hours.

CHANGE OF DEGREE OR MAJOR PROGRAM

Undergraduate. A student may change from one degree program or area of academic concentration to another when space is available provided he/she meets the prerequisites for admission to the new program and has appropriate written approval, *a Declaration of Program*, filed at the Registrar's Office.

Graduate. A graduate student may change from one degree to another if he/she meets the criteria for admission to the new program and is accepted by the new department. The student must file a written request for change with the Graduate Admissions Office which will forward all credentials to the new department for an admissions decision. The student, department and Registrar will be notified of the decision by letter.

ATTENDANCE

The instructional work of the University is designed for class attendance, and it is assumed that students will be present. Students who miss classes will be responsible for the work of those periods. A missed test may cost the student the advantage of a grade to be counted toward the final estimate since instructors are not required to give make-up tests.

No undergraduate student may expect to receive a favorable evaluation unless he/she has attended at least 75 percent of the total class hours.

GRADING POLICIES

Grade Reports. All students enrolled in the University receive reports of final grades from the registrar after the close of each term. The reports are mailed to the student at the address designated by the student.

Special *reports of unsatisfactory achievement* are sent to the students concerned near the middle of each regular semester.

Final Grade Changes. When a grade other than Incomplete is reported officially by an instructor at the end of a term, the grade is recorded by the Registrar and can be changed only if an error has been made in assigning or reporting the grade. Consistent with University policy, only the instructor has the right to change a grade except as provided in the Incomplete grade policy. When an instructor reports a change for a grade other than "I," the *Change of Grade Form* must be signed by his/her department chairperson and dean.

Students who think an error in grading has been made are advised to consult with the instructor as soon as the formal grade report is received. The erroneous grade must be reported to the instructor for correction during the next semester (fall or spring) in residence but no later than 12 months after the term in which the grade was assigned, whichever comes first.

Credits. The unit of measurement of University work is the *semester hour*. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour. Semester hours are also referred to as *credit hours* or *credits*.

Grades. Letters are used to designate the quality of work done. The University has separate grading systems for undergraduate and graduate students:

Undergraduate Grades			Graduate Grades	
Letter	Meaning	Quality Points Per Semester Hour	Letter	Meaning
A	Excellent	4	A	Commendable
B	Good	3	B	Satisfactory
C	Fair	2	C	Marginal
D	Passing	1	U	Unsatisfactory
F	Failing	0	I	Incomplete
I	Incomplete	*	IP	In Progress
W	Withdrawal	*	W	Withdrew
AU	Audit	*	P	Pass
NR	No recognition given for audit	*	N	No credit
			AU	Audit
			NR	No recognition given for audit
	Pass/No Credit			
H	Honors	*		
P	Passing	*		
N	No Credit	*		

*Not used in computation of grade point average.

Certain graduate courses such as research seminars, tutorials, internships or theses may be designated for pass-no credit grading upon recommendation of the offering department and approval of the Graduate Administrative Board. The grade of P in such a course shall be considered as evidence of satisfactory performance. A grade of N (no credit) will not affect eligibility for continued enrollment nor will it apply toward requirements for the degree.

Credit by Examination. No grade is assigned for credit earned by examination, but such credit is indicated on the student's transcript.

Grade of I. The grade of "I" is assigned *at the direcretion of the instructor* when a student who is otherwise passing has not completed all the work in the course. The missing work must be completed during the next semester (fall or spring) in residence, but no later than 12 months after the term in which the "I" was assigned, whichever comes first. If the "I" is not removed during the specified time, a grade of F, U or N as appropriate is automatically assigned. *The grade of "I" cannot be removed by enrolling again in the same course.*

Grade of W. No grade will be given for a course dropped on or before the last day to drop a course with refund. After this period but before the last day to drop, a student who withdraws from a course will receive a grade of "W." Courses given the grade of "W" do not count as hours attempted. Only students with such extenuating circumstances as serious illness will be permitted to drop after the last day to drop. Unsatisfactory academic performance itself is not an extenuating circumstance. The time of withdrawal is the time the drop card is accepted by the Registrar's Office.

Quality Point Ratio. The quality point ratio for an *undergraduate* student is determined by multiplying the number of quality points for each grade by the number of semester hours credit received in that course and adding all accumulated quality points together, then dividing by the total number of semester hours the student has attempted, except those for which the student has received a grade of I, W, H, P, AU, or N. When a course is repeated, no additional credit hours attempted accrue, and the hours earned and quality points of the previous grade are replaced by those of the current grade. These regulations do not apply to those courses listed as "May be repeated for Credit." In computing the quality point ratio, only those credits at-

tempted at the campus of the University of North Carolina at Charlotte or through the Charlotte Area Educational Consortium are included.

Repeating a Course. Whenever a course is repeated, no additional hours attempted accrue, and the last grade replaces the previous grade in computing the quality point average and in the assignment of academic credit. However, all entries remain a part of the student's permanent academic record. A student who has received a grade of C, H, P, or better in a course may repeat that course only with the prior approval of the student's adviser, department chairperson and dean. Repeating a course more than once to raise a grade requires prior approval of the student's adviser, department chairperson and dean. These regulations do not apply to courses that may be repeated for credit. Questions concerning this policy should be directed to the Registrar's Office.

Pass-No Credit Option. Every student will be permitted during his/her four *undergraduate* years to select a total of four courses in which he shall receive an evaluation of H (honors), P (pass) or NC (no credit). Only one such course will be selected during an academic year. Every course in the University is offered on this basis except when taken by a student for departmental credit toward his/her major or to satisfy all University degree requirements. Although units completed with honors or pass will count toward graduation, they will not be considered in the computation of the grade-point average.

This option is designed to encourage curiosity, exploration and experimentation in areas where a student has strong interest but little or no previous experience.

The student must declare his/her intention to take a Pass-No Credit option by the end of the drop/add period in the semester. Courses designated by the faculty to be graded only on a pass-no credit basis are not counted as part of this option.

TRANSCRIPTS OF RECORDS

Upon written request by the student, an official transcript of the academic record will be issued to the person or institution designated, provided that all the student's obligations to the University have been settled satisfactorily.

Each student is entitled to one transcript without cost, regardless of how early in his/her academic career the request may be made. A fee of $1 per copy should accompany subsequent requests.

Requests should reach the Registrar's Office at least one week before the date the transcript is needed.

CLASSIFICATION OF UNDERGRADUATE STUDENTS

At the beginning of each semester, regular students working toward a bachelor's degree are classified on the basis of minimum earned semester hours as follows:

Classification	Earned Semester Hours
Freshman	1-23
Sophomore	24-51
Junior	52-89
Senior	90 or more

REQUIREMENTS FOR CONTINUED ENROLLMENT

Undergraduate. In order to remain in good standing, the student's cumulative quality point ratio at UNCC must be 2.00 or higher. The quality point deficit is the number of additional quality points required to increase the student's cumulative QPR to 2.00. A student with a quality point deficit between one and 13 will be placed on academic probation, and this will be noted on the student's grade report. A student will be suspended if the student:

a. has a quality point deficit of 14 or more, or
b. has failed to achieve good standing after two successive semesters on probation (excluding summer sessions)

No student shall be suspended at the end of the current semester if the student:
a. was in good standing at the end of his most recent semester of a regular academic year at UNCC or
b. is in his first semester of enrollment at UNCC, or
c. has a 2.50 QPR for the current semester, or
d. is readmitted and was not enrolled at UNCC in the last two calendar years prior to the beginning of the current semester.

As a general rule, the summer session at the University of North Carolina at Charlotte shall be open to all students previously enrolled here, including students academically ineligible to continue during the regular academic year.

In computing the quality point ratio, only those credits attempted at the campus of the University of North Carolina at Charlotte or through the Area Educational Consortium are included.

Graduate. A student enrolled in any graduate program should maintain satisfactory progress toward the degree. He/she is expected to achieve a commendable or satisfactory grade (A or B) in all course work attempted for graduate credit.

An accumulation of three marginal (C) grades will result in termination of the student's enrollment in the graduate program. If a student makes a grade of U on any course, enrollment will be terminated.

A graduate student whose enrollment has been terminated because of grades is ineligible to attend the summer session unless properly readmitted.

A student readmitted to the graduate program through the reapplication procedures will be expected to complete the degree program with satisfactory or commendable performance. Should the student receive a grade of C or U after being readmitted to the program, his/her enrollment in the graduate program will be terminated.

REQUIREMENTS FOR READMISSION AFTER ACADEMIC SUSPENSION OR TERMINATION

Undergraduate. No student under suspension will be readmitted to the University if he/she does not completely satisfy the entrance requirements as stated elsewhere in this *Catalog*.

In addition, a student who has been suspended by reason of failure to satisfy the requirements for continued enrollment as stated above will be ineligible for readmission until (1) the expiration of the next semester following his/her suspension (except that he/she will be permitted to enroll in the Summer Session); (2) he/she meets the requirements for continued enrollment; (3) he/she earns an Associate of Arts (AA) degree from an accredited two-year institution; or (4) engineering students may elect to use the "two-year rule" in effect in the College of Engineering. If readmitted, the student will be expected to satisfy the requirements for continued enrollment.

At the end of the semester in which the student fails to meet the requirements for continued enrollment for the second time, he/she will be suspended and may be readmitted only after meeting the requirements for continued enrollment.

The student has recourse for meeting the requirements for readmission by attending summer session at UNCC.

NOTE: Readmission after suspension or after an incomplete semester, whether caused by withdrawal or suspension, is not automatic. A new application must be made and approval to return received. Included in the approval must be an acceptance from the department in which the student would carry his major. (See page 33, Readmission of Former Students.)

Graduate. Students whose enrollment is terminated for academic reasons must apply and be readmitted in order to continue their program of study. After notification of termination is received, the student initiates the reapplication procedure by filing an application for graduate readmission and a letter explaining any extenuating circumstances with the Graduate Admissions Office. The application must be accompanied by a $15 fee which is not refundable. The Graduate Admissions Office will forward the application to the student's department/college for a recommendation. The department/college will designate a Readmission Committee to consider the student's appeal for readmission. The committee will be composed of faculty members other than the faculty member(s) who assigned the grades of C or U. The Readmission Committee shall recommend to the Director of Graduate Studies that the student either be reinstated or dropped from the program. The Readmission Committee will decide each case on its individual merits. The Director of Graduate Studies will notify the student of the decision in writing.

TRANSFER CREDIT AND ADVANCED STANDING

Evaluation of transfer credits, advanced standing, CLEP, and APP are coordinated through the Admissions Office. Prospective students who desire further information about policies and procedures for awarding credit should communicate with the Director of Admissions.

UNCC will accept or transfer appropriate undergraduate credits earned through APP, CLEP, correspondence courses, extension courses, armed forces service schools, and college-level courses completed prior to graduation from high school. In addition, UNCC will accept or transfer appropriate undergraduate and graduate credits earned at another accredited institution or through credit by examination. Credit toward a degree is not awarded for Continuing Education Units (CEUs).

Advanced Placement Course Credit (APP). The departments of Biology, Chemistry, Foreign Languages, History and Mathematics have authorized University credit for undergraduate students who present scores of 3, 4, or 5 on Advanced Placement Tests of the College Entrance Examination Board.

Students who present scores in other subject areas will be granted credit for test scores of 4 or 5.

College Level Examination Program (CLEP) The General Examinations. An undergraduate student may receive up to 32 semester hours of credit equivalent to the UNCC general degree requirements, with credit being awarded only for scores at the 50th percentile, or higher.

The Subject Matter Examinations. Credit may be awarded for subject matter examinations listed below at the levels recommended in the current edition of *CLEP Scores: Interpretation and Use:*

Business

Computers and Data Processing
Elem. Programming-Fortran IV
Intro. Business Management
Intro. Accounting
Intro. Business Law
Intro. Marketing
Money and Banking

Education

Educational Psychology
Hist. American Education
Human Growth & Development
Tests and Measurements

Humanities

American Literature
Anal. & Interp. of Lit.
College Composition
English Literature
Freshman English

Nursing

Anatomy, Physiology & Microbiology

Mathematics

Calculus w/Anal. Geometry
College Algebra
College Algebra-Trigonometry
Statistics
Trigonometry

Sciences

Biology
General Chemistry

Social Sciences

Afro-American History
American Government
American History
General Psychology
Intro. Macro-Micro Economics
Intro. Macroeconomics
Intro. Microeconomics
Intro. Sociology
Western Civilization

Credit is *not* awarded for examinations in Dental Hygiene and Medical Technology.

The amount of CLEP credit which is applicable to a specific degree program is determined by the department offering the program.

Transfer Credit from Other Institutions. Transcripts are evaluated in the Admissions Office and the results are provided to the applicant and to the major department/college. Determining the applicability of transferred credits to major or program requirements is the responsibility of the department chairperson or program director. General rules governing transfer credit:

(1) To be considered for transfer credit, the courses must have been undertaken at a *regionally* accredited institution.
(2) *Provisional* transfer credit may be granted for study at foreign institutions or U.S. institutions which are not regionally accredited, but must be validated by 30 semester hours of successful performance in residence at UNCC.
(3) Courses in which credit is accepted must be appropriate for approved University programs and curricula in which the student is enrolled.

Additional requirements for *undergraduate* transfer credit:

(4) No credit below C level will be accepted; quality points and averages do *not* transfer.

Additional requirements for *graduate* transfer credit.

(5) The grade in any course accepted for transfer credit must be the equivalent of that awarded for commendable (A) or satisfactory (B) work as defined by UNCC.

(6) At the time of admission up to six transfer hours credit may be accepted from another accredited institution upon approval of the student's adviser and the dean of his/her major college.
(7) Courses accepted for transfer are subject to the same time limitation as courses taken in residence.

Correspondence and Extension Courses. A limited number of correspondence and/or extension courses may be transferred.

Courses from Two-Year Institutions. The University accepts a maximum of 64 hours from two-year institutions for undergraduate students.

Transient Study. Courses undertaken by UNCC students at other accredited institutions may be transferred to the University subject to the following regulations:

(1) The University is not obligated to accept any credit from another institution unless the student has obtained the prior approval of the dean of the college in which he/she is enrolled. A Permit for Transient Study form should be completed and filed in the Registrar's Office.
(2) No credit will be accepted below C level for *undergraduate students or below B level for graduate* students.
(3) The student must request that an official transcript be mailed to the Registrar's Office upon completion of the course.

Credit by Examination. A student currently enrolled at UNCC may pass a specially prepared challenge examination and receive credit for a University course without having to do the normal course work. The student contacts the chairperson of the department in which credit is sought to request administration of an examination. Since it may not be appropriate to award credit by examination for some courses, the decision to offer an examination is that of the department. If the chairperson authorizes an examination, the student is instructed to pay the fee for credit by examination (see p. 48 and to bring the receipt of payment to the examination. Credit by examination will be indicated on the transcript but no quality points will be awarded. Failure on such an examination will incur no quality point penalty. A department may allow a student to take examinations for courses not offered at UNCC, if it deems it appropriate to do so. No student may challenge a course for which either a passing or failing grade has been received at UNCC.

APPLICATION FOR THE DEGREE

Each student should make application for his/her degree on a form obtained from the Registrar's Office no later than the filing date specified in the University calendar. The application must be accompanied by the appropriate filing fee in effect at the time of the application. Degrees are awarded at Commencement exercises held at the end of the spring semester; however, the diploma and transcript will reflect the term in which all requirements were completed. It is the responsibility of each student to attend the commencement exercises at which he/she will receive a diploma.

TEACHER CERTIFICATION

Students having completed degree requirements and filed application for their degree, who wish certification as public school teachers must request such certification from the State Department of Public Instruction on a form obtained from the College of Human Development and Learning.

SECOND DEGREE AND/OR MAJOR

Second Baccalaureate Degree. Students who have earned bachelor's degrees from UNCC or other accredited institutions may enroll in a program leading to a second degree at the same level provided (1) the major field selected is different from that of the first degree; (2) the degree sought is different from that of the first when that degree was granted by UNCC; and (3) the appropriate application for admission is filed and approved.

Students seeking a second baccalaureate degree must (1) complete a minimum of 24 semester hours beyond those applied to the first degree; (2) satisfy residency requirements if their first degree was not earned at UNCC; (3) fulfill all general degree requirements; (4) achieve a minimum grade point average of 2.00 on all work attempted toward the second degree and (5) satisfy all department and college requirements for the degree sought.

Second Baccalaureate Major. Students who have earned a bachelor's degree from UNCC or are working on a bachelor's degree at UNCC may enroll in a program leading to a second major under the same degree provided (1) the second major field selected is different from the first; (2) the student meets the requirements for acceptance into the second major program; and (3) the appropriate application or Declaration of Program is filed and approved.

Second Master's Degree. A student is permitted to earn a second master's degree subject to the following conditions; (1) no work applied to a previously awarded degree may be applied to the new degree program; (2) the student must gain admittance to a degree program different from that of his/her previous graduate degree(s) as determined by the HEGIS classification system, and (3) the student must successfully meet all requirments for the new degree.

The University of North Carolina classifies its degree (and certificate) programs with a modified version of the system used by the U.S. Office of Education in its Higher Education General Information survey (HEGIS). The HEGIS system classifies all degree programs for appropriate instructional planning and identification.

APPEAL PROCEDURES

Undergraduate. A student or applicant may appeal decisions about admission or suspension by submitting a written statement to the Admissions Advisory Committee in care of the Dean of Admissions and Records.

Other grievances relating to academic status are to be addressed by the college where the grievance arises, or if no particular college is appropriate, by the Dean of Admissions and Registration. Written procedures are available from the dean of each college and the Dean of Admissions and Registration.

Graduate. Any student or applicant may appeal any decision affecting his/her status as a graduate student by submitting a written petition to the Appeals Committee of the Graduate Administrative Board in care of the Office of Academic Affairs after remedies have been exhausted in the appropriate college. The petition shall briefly describe the facts which support his/her claim and the remedy being sought. The petition must be submitted within six calendar months of notification of the action being appealed. After receiving the petition, the chairperson of the Appeals Committee will schedule a hearing as soon as possible. A hearing will be held within 60 days of receipt of the written petition of appeal. Evidence will be received from the petitioner and other parties having information bearing on the appeal. The chairperson of the Appeals Committee shall report its decision on any appeals matter (a) directly to the Director of Graduate Studies and (b) to the Graduate Administrative Board at the first board meeting following the hearing. The Director of Graduate Studies shall advise the petitioner in writing of the decision of the Appeals Committee within 30 days after the end of the hearing. Questions about the procedure should be addressed to the Associate Vice Chancellor for Academic Affairs and Director of Graduate Studies in the Office of Academic Affairs.

Academic Honors

CHANCELLOR'S LIST

The Chancellor's List is a record of all undergraduate students whose academic record during the fall or spring semester merits special recognition from the University. In order to qualify for the Chancellor's List, a student must complete 12 semester hours with grades of *A*, *B* or *C* and achieve a quality point average of at least 3.60.

COMMENCEMENT MARSHALS

The juniors who have the highest scholastic averages among those enrolled full-time during the fall and spring semesters are honored by being named commencement marshals. The marshal who has the best academic record is designated chief marshal. For the purpose of this selection, the University considers as juniors those students who will have completed 89 hours of degree work at the end of the spring semester. Juniors who have not completed their last two semesters of work or their last 24 credit hours prior to the spring semester at the University of North Carolina at Charlotte shall not be considered as eligible to be marshals.

GRADUATION WITH HONORS

Each of the undergraduate degrees is awarded Summa Cum Laude when the graduate's quality point ratio is 4.00, Magna Cum Laude when his/her quality point average is at least 3.80 but less than 4.00, and Cum Laude when his/her quality point average is 3.40 or more but less than 3.80.

To be eligible for degree honors, a student must attempt in residency at UNCC 48 hours used in computing the quality point average.

Degree Requirements

BACCALAUREATE DEGREE REQUIREMENTS

Residence Requirements. The minimum residence requirement for a bachelor's degree at the University of North Carolina at Charlotte is that a student must earn the last 30 semester hours of credit at the University. The last 12 semester hours of the work in his major field must be earned at the University. Exception to either of these hour provisions may be made upon the approval of the student's major department in consultation with the department offering the course or courses in question and with the approval of the dean of the college of the student's major.

Course work taken in residence shall be construed to mean work offered by the University of North Carolina at Charlotte and taken in courses on the Charlotte campus. Credit earned by challenge examinations cannot be used to meet the residence requirement.

Quality Point Requirements. In all courses attempted at the University, a minimum overall quality point average of 2.00 is required. In all courses in the major, a minimum quality point average of 2.00 is required.

Course Level Requirement. Junior and senior students are required to have the consent of the major department to enroll in any course below the 300 level not required in their degree program.

Course Requirements: Course requirements for baccalaureate degrees are specified for each degree:

Bachelor of Arts (BA) and Bachelor of Science (BS)

Minimum total semester hours required for graduation: 120

(BA degree with major in architecture requires 135 hours)

Subject	*Semester Hours Required*
English	6
Natural Science (One year of a laboratory science — Ant 241, biology, chemistry, Earth Science 101, 102, Physics, or Psychology 101-101L. Psychology 101 may be offered as a natural science or as a social science but not as both.)	8
Social Science (to be selected from Anthropology, Criminal Justice, Economics, Geography, Political Science, Psychology or Sociology)	6
Humanities (to be selected from any courses that are not used to satisfy any other requirements for a degree and are offered by the programs and departments which follow: Afro-American and African Studies, American Studies, Departments of Creative Arts, English, Foreign Languages, History, Humanities, Philosophy, and Religious Studies. A foreign language may be offered as a foreign language or as a humanity, but not both.)	6
Option of Mathematics or Foreign Language	6-8

Mathematics Option. Under the mathematics option a course in logic may be substituted for one course in mathematics.

Foreign Language Option. The student who selects the foreign language option is expected to achieve and demonstrate proficiency in a language other than English. Proficiency must at least equal that obtained by successful completion of 202-level language courses.

A student who presents four high school units in the same foreign language will be presumed to have satisfied the foreign language option of the general degree requirements even though he receives no University credit in that language.

The student who presents two units in a given language for entrance and who, by placement test, is found capable of enrolling in the 201 course in the same language, can satisfy the general degree requirement by successfully completing the 201 and 202 courses in that language.

The student who, on the basis of placement results, is advised to repeat the elementary course will receive credit for doing so. He or she may also choose to take an elementary course in another foreign language for elective credit.

A student admitted without foreign language units must take two elementary language courses for which he or she receives elective credit.

A student transferring to the University of North Carolina at Charlotte with two or more years of college work in an ancient or modern language not taught at the University, with a grade of at least C in each course, will be deemed to have fulfilled his foreign language requirement, provided he or she has completed satisfactorily two years of high school foreign language.

Students transferring from other colleges will take language placement tests in the language they intend to continue at the University, and they will be advised to register for the course for which they are best fitted, according to their placement test scores, for best results in their language sequence. They may not, however, receive credit again for courses the equivalent of which have already been accepted for transfer credit.

NOTE: For the number of hours and additional courses required for a specific major, see the requirements of that department in the section entitled Courses of Study and Special Programs.

Bachelor of Architecture (BArch)

The Bachelor of Architecture requires 30 semester hours of specified courses beyond the requirements for the Bachelor of Arts degree with a major in Architecture.

Bachelor of Creative Arts (BCA)

A major in Creative Arts leading to the BCA degree consists of at least 50 hours in Creative Arts Lecture and studio courses, 30 hours of related non-Creative Arts electives, English 101 and 102 and 34 hours of individual projects. A minimum of 120 hours is needed for graduation. A 2.5 quality point ratio must be maintained in Creative Arts courses and individual projects. No grade below C is acceptable in a Creative Arts Course.

Bachelor of Science in Engineering (BSE)

Courses	*Semester Hours*
English	3
Science/Humanities and Social Science Electives	15
Economics	3
Mathematics	17
Physics	10
Chemistry	4
Science Elective	3
Freshman Engineering	1
Engineering Science	6
Departmental Requirements	55
Minor Option	15
Total Number of Semester Hours Required For BSE degree	132

NOTE: The courses required for a specific major are described in the departmental section of this catalog under Courses of Study and Special Programs. The engineering electives, the humanities and social science electives, and the technical or humanities electives will ordinarily consist of sequences of related courses and are subject to the prior approval of the College.

Bachelor of Engineering Technology (BET)

Prerequisite courses for entering the Engineering Technology program normally taken at a technical institute or junior college, are listed on page 278.

Course	*Semester Hours*
Chemistry 101 (or other Natural Science)	3*
Computer Science (CSC) 100	3
Economics 201 or 202	3
Humanities or Social Science electives	12*
Free electives	3
Major electives	6*
Engineering Analysis	6*
Specified courses in major area of study	23*
Total	64
Transfer credit for A.A.S. degree	64
Total Number of semester hours required for B.E.T. degree	128

**Differences exist for CET and MET curricula.*

Bachelor of Science in Nursing (BSN)

A major in Nursing leading to the Bachelor of Science in Nursing degree requires 120 semester hours including the following:

Course	*Semester Hours*
English	6
Humanities	6
Mathematics 101 and 122	6
Biology 101, 203 and 205	12
Chemistry 103 and 104	8
Psychology 101 and 307	6
Sociology 151 and Family	6
Nursing 102 or equivalent	3
Nursing	55
Electives	12
Total semester hours	120

GRADUATE DEGREE REQUIREMENTS

Residence Requirements. Generally, no more than six semester hours of transfer credit is accepted toward a graduate degree. All other work must be residence credit.

Residence credit is credit that is earned under the conditions specified herein and may be applied toward the attainment of graduate degrees at the University of North Carolina at Charlotte. These conditions must be satisfied regardless of the location in which the course is given.

1. Instruction: The instructor must be a member of the Graduate Faculty of UNCC, or "especially qualified" for a particular course under GAB policy.
2. Course(s): The content of each course must be approved by regularly established college and university curricular processes before the course is scheduled or offered.

Residence credit may also be awarded by virtue of an examination administered by the faculty of the college offering credit. A student may also, with the prior approval of the appropriate University of North Carolina at Charlotte college(s), take graduate courses for residence and course credit at other accredited institutions.

Program Approval. Each student's individual program of study must be approved by his/her department/college.

Admission to Candidacy. Upon successful completion of a maximum of 18 semester hours of graduate work and in no case later than two weeks prior to the beginning of the semester in which he/she expects to complete all requisites for the degree, a student should file for Admission to Candidacy on a form supplied by the Records Office. This application is a check sheet approved by the student's adviser, department chairperson and college dean listing all course work to be offered for the degree (including transfer credit and courses in progress.)

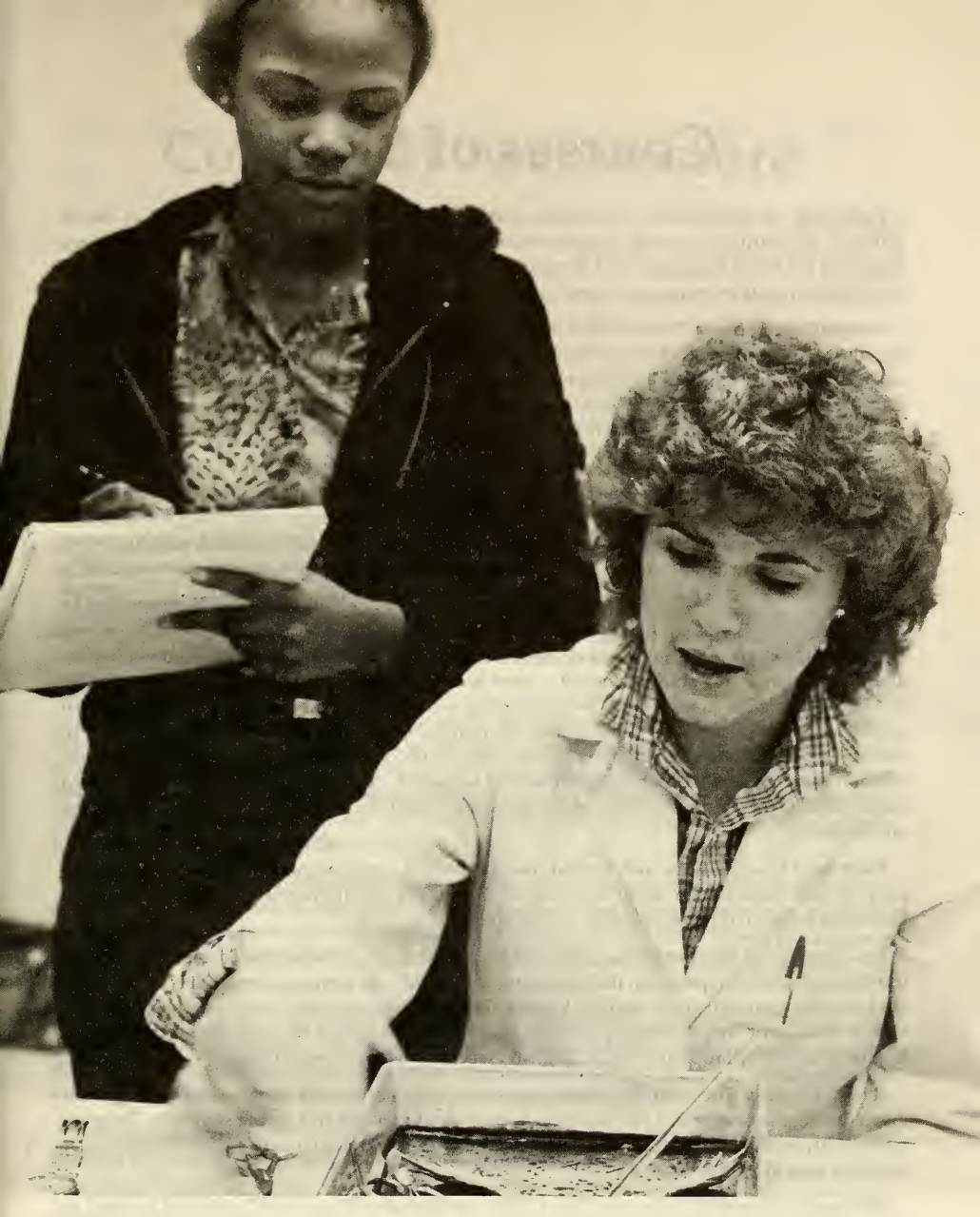
Upon receipt of this application, the Director of Graduate Studies will consult with the department concerned to arrange for the scheduling of the comprehensive examination(s) and composition of the examining committee.

Minimum Hours. A student is expected to satisfactorily complete a minimum of 30 to 42 semester hours of approved courses depending upon his/her individual program.

Comprehensive Examination. After admission to candidacy, each student must successfully complete a comprehensive examination. The examination may be written, oral or both depending upon the student's specific program requirements.

Time Limit. All work offered for the master's degree, including accepted transfer credit, must be completed within a six-year period.

Course and Other Requirements. For a description of course and other requirements for specific degrees and majors, consult the section of this catalog entitled Courses of Study and Special Programs under the department offering the program.



Courses Of Study And Special Programs

Courses of Study

Following are descriptions of courses and programs offered by the University of North Carolina at Charlotte for both undergraduate and graduate students. Courses and degree programs are listed by college and department or academic area. Other special programs and information about preparation for professional schools are listed in separate sections.

Course Descriptions. Courses are listed with a subject prefix and course number, the title of the course, the semester hours credit given in parentheses, prerequisites or corequisites, if any, and a description of the subject matter of the course. The description may specify the number of class and/or laboratory sessions and hours. If no class hours are given, the number of class hours per week is the same as the number of semester hours credit for the course.

Course Numbering System. The first digit of the course number generally identifies the level of the course: 100-199 for freshmen, 200-299 for sophomores; 300-399 for juniors, 400-499 for seniors, 500-599 for graduate students and upper-level undergraduates, 600-699 for graduate students only, and 700-799 for advanced graduate students. Some 300 and 400-level courses are available for both undergraduate and graduate credit. Type of credit available for a course is indicated by the credit hours, e.g., (3) for undergraduate and (3G) for graduate. Prerequisites for each course must also be consulted to determine the student's eligibility to take that course.

Course Selection. Although each student is responsible for the proper completion of his/her academic program, the student should consult with the assigned academic adviser or advisory committee in his/her major field. The adviser will assist the student to select courses within an approved program for study which will enable him/her to progress logically and successfully to the conclusion of the chosen degree program and to fulfill the requirements of both the University and the major department or professional sequence. Students intending to teach should consult faculty advisers in both the major department and the College of Human Development and Learning.

Placement Examinations and Procedures. Placement examinations are given at the beginning of each semester to assist students to determine the appropriate course for them in Freshman English, foreign language and mathematics.

Freshman English Placement Procedures. The Freshman English Placement Test is administered during the orientation period at the beginning of each fall and spring semester. It is open to any student who wishes to take it and the English Department specifically invites some students to take it. A student whose primary language is not English cannot be registered for Freshman English until the appropriate UNCC English Placement Test has been taken.

Foreign Language Placement Procedures. Placement examinations in the foreign languages are given during the orientation period at the beginning of each fall and spring semester. They are open to any student who wishes to take an examination in a language they have studied for at least one year in high school.

Mathematics Placement Procedures. The UNCC Mathematics Placement Guide will be used to help students select the appropriate entry level mathematics course. A copy of the guide is included in the orientation packet for new Freshman students.

College of Architecture

Dean: Professor Hight
Professors: Anderson, Melaragno, Lu
Professor Emeritus: Langhorst
Associate Professors: Gallis, Vollendorf, Benzing, MacLean
Assistant Professors: Incze, Hinson, Moore, Nelson, Sauda, Kleinman, Pressman
Visiting Assistant Professors: Herman, Venn
Part-time Lecturers: Aveleyra, Egan, Jolly, Story, O'Shaughnessy, Banizaman, Preiss, McGhee, Yin
The Distinguished Visiting Architects: Wedin, Wright, Koetter, Campbell, Harp, Taylor, Wells, Wu, Lobell, Rice

Our society's increasing concern for environmental quality and realization of the fact we live in a world of finite resources provides unprecedented opportunities for architects to be engaged in research and programming, as well as in the planning and design of our buildings, building complexes, cities and other elements of the built environment.

The College believes humane, economically sound and visually stimulating cities and buildings can only be obtained through sensitive, responsible and creative meshing of the physical, societal, psychological, ecological, technical and visual determinants of environmental planning and design.

Therefore, the College of Architecture seeks to cultivate a sense of inquiry within each student and develop the individual's techniques of problem identification and solving. As process and product are viewed as being equally important and inter-related, the COA believes students must possess the necessary verbal and visual communication skills for examining environmental issues, testing ideas, and communicating with others, as well as being equally proficient at analysis and synthesis.

In order for students to receive individual attention, the student-faculty ratio is kept as low as reasonable, and the faculty is composed of persons with a broad range of knowledge, skills and philosophies. In addition to the full-time faculty, a number of local practitioners participate as part-time instructors and an extensive visiting lecture-design critic program has been established.

Located in the major and most rapidly growing metropolitan area of the Carolinas, the College is able to incorporate community assistance projects into the educational program, and students may observe major buildings under construction, evaluate recently completed building complexes and examine the urbanization phenomena.

The program is organized into a four-year segment (Bachelor of Arts in Architecture degree) followed by a one-year segment (Bachelor of Architecture degree).

Bachelor of Arts in Architecture. This four-year program requires 135 semester hours including 48 hours architectural studio, 34 hours of other architectural courses, and 53 hours of general and elective courses. It is structured into the Architectural Foundation Program (first and second years), and the Architectural Development Program (third and fourth years). Whereas, the Foundation Program's purpose is to provide all students with the information and skills required of all persons involved in the planning and designs of our physical environment, the Development Program provides students with educational alternatives, i.e., they may select from a series of different studio/seminar and lecture/seminar experiences.

The intention is to provide an educational milieu so that graduates will possess the following knowledge, abilities and attitudes:

1. Identify environmental problems and their boundaries including user's needs, values, priorities and resources.

2. Discriminate what is, and what is not, relevant as well as learn to organize the collected information into a useful format.
3. Capacity to abstract ideas and concepts and apply the gained knowledge to different situations.
4. Generate design alternatives.
5. Develop visual simulation techniques in order to evaluate alternatives, predict consequences, and communicate with others.
6. Understand humanistic (social, psychological, physical) needs and values and their relationships with the built environment.
7. Creatively perform systematic and intuitive analysis and synthesis of design problems, including examining the what, where, why and how of a problem.
8. Understand the qualitative and basic quantitative characteristics of building systems and their relationship to space-movement organizations.
9. A strong sense of self-discovery and expression, as well as an attitude of participating in establishing society's priorities.

Graduates of the B.A. in Architecture program are eligible for admission into the fifth year program, or they may pursue graduate study in related fields such as planning, urban design and landscape architecture.

Bachelor of Architecture. Admission requires an architectural or environmental related degree and acceptance into the College. The program requires 30 semester credit hours, including 14 hours of architectural studio, 10 hours of other architectural courses, and six hours of general studies.

The College seeks its Bachelor of Architecture graduates to possess the following attributes:

1. A more fully developed understanding, knowledge and skills noted in the Bachelor of Arts program.
2. Ability to investigate and understand selected architectural issues.
3. General understanding of architectural practice, including its present and projected trends and developments.
4. Possession of a rather in-depth understanding of an architectural subject through elective course study and its integration with the studio experience which emphasizes self direction.

So that students receive a general and comprehensive architectural education, the following discrete, but related teaching-learning experiences, are provided.

The Architectural Studio/Seminar: Besides providing both analytical and synthetic experiences and the opportunity to pursue intense study of physical-environmental related subject(s), these courses create a linkage between the humanistic, physical phenomena, social-psychological, behavioral, and perceptional studies.

The Architectural Technology Courses: To provide a basic quantitative and qualitative behavioral understanding of structural and environmental control systems.

The Architectural Lecture/Seminar Electives: Through these courses students will be able to develop a comprehensive understanding of an architectural subject(s).

The Architectural History Lectures: Their purpose is to develop an understanding of the relationships between culture and their physical manifestations.

Independent Studies: When appropriate, a student may pursue a self-directed, faculty approved study, of a particular and significant architectural topic or subject.

General University Requirements: While the College has designated credit hours which must be taken in specific courses, an additional 10 hours are to be chosen by the student in accordance with his or her specific educational objectives.

Directed Electives: In order for a student to achieve a significant level of competence and understanding in a selected area or to achieve a comprehensive education, 33 hours of elective study are required for the Bachelor of Arts in Architecture, and an additional six hours are required for the Bachelor of Architecture degree. These courses must be selected in accordance with a student selected, faculty approved plan of study.

The Faculty Advisory Program: Major emphasis is given to a system of faculty advising so that there occurs an orchestration of architectural courses with general required and elective courses in accordance with a student's educational objectives.

Dural Degree/Major Option: It is possible for students to pursue a double degree or major program after the freshman year. Thus, in addition to architecture, a student may pursue a major study in a selected discipline such as history, engineering, business management, social sciences, etc. Any arrangement must meet the University's and College's requirements, as well as be structured in consultation with a faculty advisor and approved by the Dean.

Study Abroad Program: Arrangements have been made for students to study architecture for one or two semesters with the University of Copenhagen in Denmark and receive college credit.

B.A. in Architecture Academic Standards: A grade of C is the minimum passing grade in studio. Any student receiving less than a grade of C when repeating a studio course will be expelled from the COA. In order to graduate, an overall grade point average of 2.0 must be achieved in all required courses offered by the College of Architecture.

Bachelor of Architecture Academic Standards: A grade of C is the minimum passing grade in studio. Any student receiving less than a grade of C when repeating a studio course will be expelled from the COA. In order to graduate, an overall grade point average of 2.50 must be achieved in all the B. Architecture required courses offered by the College of Architecture.

THE FOUNDATION PROGRAM

First Year

ARC 101	7	ARC 102	7
ENG 101	3	ARC 104	1
PHY 101	4	ENG 102	3
MAT 120	3	ES 301	3
		Mat. Elective	3*
	17		17

Second Year

ARC 201	7	ARC 202	7
ARC 211	3	ARC 212	3
Nat. Sci. Elect.	4*	Soc. Sci. Elect.	3*
General Elect	3*	General Elect	3*
	17		16

THE ARCHITECTURAL DEVELOPMENT PROGRAM

Third Year

ARC 301	5	ARC 302	5
ARC 311	3	ARC 322	3
ARC 321	3	ARC Elective	3*
ARC Elective	3*	General Elect.	3*
General Elect.	3*	General Elect.	3*
	17		17

Fourth Year

ARC 401	5	ARC 402	5
ARC 421	3	ARC 422	3
ARC Elective	3*	ARC Elective	3*
General Elect.	3*	General Elect.	3*
General Elect.	3*	General Elect.	3*
	17		17

B.A. in Architecture: 135 hours.

**Courses to be selected in accordance with program of studies developed with and approved by the faculty adviser.*

ARCHITECTURAL PROFESSIONAL PROGRAM

ARC 501	7	ARC 502	7
ARC 511	2	ARC 512	2
ARC 515	3	ARC 516	3
PHI 325	3	General Elective	3*
	15		15

Bachelor of Architecture: 30 hours

Course to be selected with advisement and consent of the 5th year faculty.

COURSE DESCRIPTIONS

BACHELOR OF ARTS IN ARCHITECTURE

Studio Courses

ARC 101. Comprehensive Studio. 7 credit hours/15 contact hours. Prerequisite: major in Architecture or consent of the dean. Network of lectures, seminars and laboratories dealing with visual ordering systems, environmental design issues and creative problem identification-solving processes, as well as visual and verbal communication skills development.

ARC 102. Comprehensive Studio. 7 credit hours/15 contact hours. Prerequisite: major in Architecture or consent of the dean, and ARC 101. Similar to 101 but with emphasis upon examination of structural and other geophysical qualitative characteristics and their relationship with formal-spatial-movement organization.

ARC 104. Professional Options and Development. 1 credit hour/1 contact hour. Examination of major architectural movements, career options and opportunities, discussions of personal goal setting, and counseling on establishment of each student's program of study.

ARC 201. Comprehensive Studio. 7 credit hours/15 contact hours. Prerequisite: major in Architecture, ARC 102, 104. Network of lectures, seminars and laboratories with emphasis upon the human needs (sociological, psychological and physiological) and values and their relationships with spatial and form organization and design. Student exposed to several programming design methodologies and examination of historical precedents.

ARC 202. Comprehensive Studio. 7 credit hours/15 contact hours. Prerequisite: major in Architecture, ARC 201. Similar to ARC 201 with inclusion of structural/geophysical studies, as well as continued development of the student's ability to collect, organize and analyze information, abstract ideas and commencement of synthesis.

ARC 301. Architectural Studio. 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 202.* Series of studio sections offered with different emphasis and subject concentration in order to provide the student with an opportunity to receive a variety of studio experiences or to pursue an area of study. Student may take one instructor for no more than two of the four studios. Section emphasis to be announced by time of academic registration.

*Some studies will be limited to only third or fourth-year students, while others are open to both.

ARC 302. Architectural Studio. 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 301.* Similar to ARC 301.

ARC 401. Architectural Studio. 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 302.* Similar to ARC 301.

ARC 402. Architectural Studio. 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 401.* Similar to ARC 301.

Architectural History Courses

ARC 211. Ancient Architecture. 3 credit hours/3 contact hours. Study of ancient architecture and communities with emphasis upon the built environment as a cultural, political, religious, economical and visual expression.

ARC 212. Medieval/Renaissance Architecture. 3 credit hours/3 contact hours. Prerequisite: ARC 211. Study of medieval and renaissance architecture, and communities with emphasis upon the built environment as a cultural, economical, political, religious and visual expression.

ARC 311. Eighteenth-Twentieth Century Architecture. 3 credit hours/3 contact hours. Prerequisite: ARC 212. Study of theoretical, technical and cultural background of architecture and planning from the middle of the 18th century through the mid 20th century. Emphasis upon development of ideas as they relate to architectural theories of the 20th century.

Building Systems Courses

ARC 321. Building Systems One. 3 credit hours/3 contact hours. Prerequisite: MAT 120, PHY 101. Basic quantitative study of structural and material behavior, as well as continued study of qualitative behavior initiated in the Foundation Program studios. Primary emphasis upon static forces.

ARC 322. Building Systems Two. 3 credit hours/3 contact hours. Prerequisite: ARC 321. Continuation of ARC 321.

ARC 421. Building Systems Three. 3 credit hours/3 contact hours. Prerequisite: PHY 101. Basic quantitative studies of HVAC, electrical, plumbing and lighting systems, as well as continued qualitative studies initiated in the Foundation Program studios and relationship of these systems with structural alternatives. May be taken concurrently with ARC 321.

ARC 422. Building Systems Four. 3 credit hours/3 contact hours. Prerequisites: ARC 421. Continuation of ARC 421.

General Architectural Courses

ARC 350. Architectural Elective Studios. 3 credit hours, contact hours to depend upon the nature of the course. Prerequisite: ARC 202. Series of lecture/seminar/laboratory courses which include concentrated, in-depth study of selected environmental design/planning subjects. Specific subjects to be announced by time of academic registration.

ARC 390. Directed Independent Study. 1-3 credit hours. Prerequisite: major in Architecture. This course is designed to allow students to pursue faculty directed independent study topics not provided by other departmental offerings. May be repeated for credit with the approval of the College. May not be taken in conjunction with ARC 501 and ARC 502.

*Some studies will be limited to only third or fourth-year students, while others are open to both.

ARC 501. Comprehensive Studio. 7 credit hours/15 contact hours. A faculty directed studio of primarily short-term exercises in sketch mode, resulting in group reviews and related seminars. In addition to the primary issue of creative architectural design, exercises will also address environmental analysis and problem formulation. The final weeks of the semester will be devoted to definitive development of a student-selected design from among the foregoing exercises.

ARC 502. Thesis Studio. 7 credit hours/15 contact hours. Prerequisite: C or better evaluations for ARC 501, 511 and 515. Execution of thesis project proposed by the student and accepted by the faculty for ARC 511. Must be taken concurrently with ARC 512 and ARC 516.

ARC 511. Thesis Proposal. 2 credit hours/2 contact hours. A proposal to initiate a thesis project, approval of which is required for admission to ARC 502.

A Thesis Advisory Committee, of three, consisting of one COA undergraduate faculty, one 5th year faculty, and one from outside will advise the student in both preparation of the thesis proposal (ARC 511) and the thesis (ARC 502). Must be taken concurrently with ARC 515.

ARC 512. Architectural Practice. 2 credit hours/2 contact hours. The learning objectives of this course include a theoretical understanding of the practice of architecture today in terms of scope, responsibilities and procedures, as well as of emerging alternative forms of architectural practice and roles of the architect. Must be taken concurrently with ARC 502 and 511.

ARC 515. Architectural Seminar. 3 credit hours/3 contact hours. The purpose of this seminar is to broaden the student's knowledge of the whole decision-making realm of which architecture is but a part and how creative decisions are made by the architect. Integrated with studio exercise application, seminars will address, at all issue levels, the establishment of priorities for design and evaluation. A working and theoretical understanding of the interface of the designer's personal attitudes and the context of a specific project in establishing priorities is a major learning objective. Must be taken concurrently with ARC 501 and 511.

ARC 516. Architectural Seminar. 3 credit hours/3 contact hours. The purpose of this seminar is to serve the needs of ARC 502 in design response to the issues addressed in ARC 511 and ARC 515, as well as the following learning objectives:

1. To acquire an understanding of the purpose, creation and maintenance of laws governing buildings;
2. To develop skills in public presentation and discussion;
3. To refine the ability to perceive the issues inherent in the work of others and to respond with meaningful criticism;
4. To deepen the understanding of the systems of building. Must be taken concurrently with ARC 502 and 512.

College of Arts and Sciences

Dean: Professor Burson
Associate Dean: Professor Lyons

The College of Arts and Sciences is composed of the Afro-American and African Studies area, the American Studies area and the Departments of Biology, Chemistry, Creative Arts, Criminal Justice, English, Foreign Languages, Geography and Earth Sciences, History, Mathematics, Philosophy, Physics, Political Science, Psychology, Religious Studies and Sociology and Anthropology.

Baccalaureate degrees are offered in all departments and areas except American Studies. Medical Technology options are available in Biology and Chemistry; Computer Science options are available in Mathematics. The following graduate degrees are available: Master of Arts in English, Geography, History, Mathematics, Mathematics Education, and Psychology; Master of Science in Biology, Chemistry and Criminal Justice; and Master of Urban Administration. The College also offers graduate courses in foreign languages, physics, political science, religious studies, sociology and anthropology.

Afro-American and African Studies

Director: Frank Porter Graham Professor Maxwell
Assistant Professors: Ekechukwu, Thomas
Lecturers: Alexander, Davis

The major in AAA Studies for the B.A. degree consists of 30 semester hours of AAA Studies courses including AAA 101, 102, 203, 204, 390 and 401 and six hours selected from AAA 103, 104 and 490. The major in Afro-American and African Studies is divided into four phases which have corresponding courses applicable to each year in the undergraduate curriculum.

PHASE I. WHO AM I? The controlling objective of Phase I is to initiate awareness and exploration. This process involves both personal and intellectual growth in all areas of academic, social and communal relations with yourself and those around you. In an effort to help incoming students adjust to the diversities of the college curriculum, a series of courses has been grouped together to form the Freshman Block.

A major part of the Afro-American and African Studies Program is the Human Relations Lab at the beginning of each year. The lab, commonly referred to as "The Encounter," helps the student in his/her academic course of study. Through a series of three-day sessions, the student is helped to develop skills in communication, group participation, listening, setting goals and effectively pursuing them.

Fall Semester	**Spring Semester**
Black Experience 101	Black Experience 102
English 101	English 102
History 125	Electives
Sociology 151	African Experience 104
African Experience 103	

PHASE II. WHY AM I HERE? The controlling objective of Phase II is to deepen the self-awareness begun in Phase I and to awaken in the student an appreciation of Afro-American culture in the aesthetic and social realms. The primary courses for Phase II include:

Afro-American Culture I — a survey course which analyzes the Black experience through literature, music, drama and art.

Afro-American Culture II — a survey course which examines social, political, economic and educational institutions from the Black perspective.

PHASE III. WHERE DID I COME FROM? The controlling objective of Phase III is to develop the skills and provide the framework necessary to help the student move to a higher level of theorizing and exploration. The primary focus of Phase III includes:

Research Methods — the design of a research project from the Black perspective with emphasis on developing sound research methods.

Experiential Learning — the purpose is to draw up an hypothesis from the total learning experience in Phases II and III, which the student hopes to validate.

PHASE IV. WHERE DO I GO FROM HERE? The controlling objective of Phase IV is to provide a process through which the student can answer the question, "Where Do I Go From Here?" By means of a senior project and participation in a seminar with others engaged in research in Afro-American and African Studies, the student will attempt to appraise where he is now, given his personal and academic growth in the first three phases: The primary focus for Phase IV includes:

Participation in the Human Relations Lab
Senior Seminar
Senior Project
Certification by the Advisory Committee

From Phase I to Phase IV, the curriculum is structured to aid not only in the academic development of the student but also in the development of his entire being.

Community Projects. Involvement in the Black Community is essential in all phases of the Afro-American and African Studies Program. It is here that students utilize their skills in learning and communication.

PHASE I students may participate in various tutorial programs and give valuable assistance to senior citizens and others. Sample areas of involvement:

Belmont Center
Greenville Center
Metrolina Association for the Blind
Hidden Valley Elementary School
Planned Parenthood
The Charlotte Post
Neighborhood Centers
City Police Department
Bethlehem Center
Legal Aid Society
Mechanics & Farmers Bank

PHASE II AND PHASE III projects emphasize the aesthetic and social realms of Black life open to intuitive explorations and experimental research. Sample areas of involvement:

Oyo Tunji Village
Kwanzaa
Charlotte-Mecklenburg Afro-American Cultural and Service Center
Development of Independent School
Black Business Enterprises
Study Abroad
Charlotte City Police Department
Mental Health & Allied Services
WGIV
Legal Aid Society

PHASE IV projects should be geared to extensive research in both African and Afro-American Studies.

SUGGESTED CURRICULUM LEADING TO A BACHELOR OF ARTS DEGREE IN AFRO-AMERICAN & AFRICAN STUDIES

Freshman Year

Black Experience 101	3	Black Experience 102	3
English 101	3	English 102	3
History 125	3	African Experience 104	3
Sociology 151	3	Electives	6-9
African Experience 103	3	Humanities	3
Math 101 or Natural Science	3-4	Natural Science or Math	3-4
	18-19		15-16

Sophomore Year

AAA 203	6	AAA 204	6
Natural Science or Math	3-4	Natural Science or Math	3-4
Social Science	3	Humanities	3
	12-13		12-13

Junior Year

AAA 390 Research Methods	3	Hum 450-Non. Res. Studies	1-15
Electives	12	AAA Elective	1-3
	15		2-18

Senior Year

AAA 401 Senior Seminar	3	AAA 499 Senior Project	3
AAA 490 Human Relations Lab	3	AAA Elective (495)	1-3
Electives	9	Electives	10-12
	15		14-15

COURSE DESCRIPTIONS

AAA 101. The Black Experience I. (3) Core course for all students with an interest in the personal development of Black awareness. Opportunities for exploration of self definition and development of interpersonal relationship skills which will create and facilitate effective community dialogue and action.

AAA 102. The Black Experience II. (3) Prerequisite: AAA 101 or the consent of the instructor. Core course for all students with a desire for further personal development of Black awareness. Student orientation to experiences involving a Black perspective. Insight concerning the significance of an Afro-American experience as a relevant and serious topic for study and examination.

AAA 103. The African Experience I. (3) Core course for all students with an interest in exploring, from an African perspective, indigenous African cultures by focusing on historical and socio-psychological problems of traditional Africa.

AAA 104. The African Experience II. (3) Core course for all students with an interest in exploring contemporary issues among indigenous Africans and their impact upon Afro-Americans and Africans in the diaspora.

AAA 203. Afro-American Culture I. (6) A survey course which analyzes the Afro-American experience through literature, music, drama and art. Research and creative action projects will be required.

AAA 204. Afro-American Culture II. (6) A survey course which examines social, political, economic and educational institutions from the Black perspective. Examinations of these institutions in part through directed field work.

AAA 350. Topics in Afro-American and African Studies. (3) Treatment of a special topic. May be repeated for additional credit with approval of the director.

AAA 390. Research Methods. (3) Prerequisite: completion of Phase II or consent of the instructor. The design of a research project from the Black perspective with emphasis on developing sound research methods.

AAA 401. Senior Seminar. (3) Prerequisite: completion of Phase III, corequisite: AAA 499. Reading, discussion, reports. Peer critique of conceptualization, methodology and research of senior project. (May be repeated for credit with consent of Advisory Committee.)

AAA 490. Human Relations Laboratory. (1-3) Prerequisite: completion of Phase III and invitation of the instructor. Certain Phase IV students will be given opportunity to develop laboratories in human relations with students in Phase I, II and III.

AAA 492. Colloquium. (3) Prerequisite: consent of the instructor. A weekly colloquium for students engaged in research and writing to provide opportunity for mutual stimulation, critique and problem solving. Not open to majors for credit.

AAA 495. Independent Study. (1-3) Prerequisite: consent of the department. Supervised investigation of a problem or subject in the area of Afro-American and African Studies that is of interest to the student. May be repeated for credit.

AAA 499. Senior Project. (3) The writing of the senior thesis or work on an equivalent project. (May be repeated for credit with consent of the Advisory Committee.)

American Studies

Coordinator: Assistant Professor Blackwelder

The American Studies emphasis is intended to allow a student to focus strongly on various aspects of the culture of the United States while also gaining further variety of background from other facets of the University's curriculum. It is hoped that through this concentration he/she will gain insight into the interrelatedness of various aspects of American life, both past and present. (Students intending to teach in junior or senior high school should also find such an interdisciplinary emphasis to be very advantageous.)

The American Studies emphasis is open to all students in the University. A student desiring an emphasis in American Studies will take 27 hours in courses allowed toward the emphasis. All American Studies students will take American Studies 301, Introduction to American Studies, no later than the junior year, sooner if possible. Also, each is to take at least 3 hours of American Studies 303. In most cases there will be some overlapping of the requirements for the degree proper and for the American Studies emphasis. A student whose major department offers sufficient courses in the American area will take a minimum of 9 hours of American Studies courses in his/her major and may count a maximum of 12 hours toward both the emphasis and major requirements.

To meet the requirements for the emphasis a student also must have at least a 2.0 average in the courses taken at UNCC which are offered for the emphasis. Students in this program will be advised by that person in the department of the major designated to advise American Studies students. Variety of experience is encouraged. American Studies students are also encouraged to take parallel courses during the same semester when possible (e.g., Southern history and Southern literature during the same semester). The degree will be in the student's major with the American Studies emphasis indicated on the student's transcript.

AMERICAN STUDIES 301. Introduction to American Studies. (3) To be taken by all students taking an emphasis in American Studies. Should be taken by them no later than the junior year and sooner if possible. An introduction to the rationale of American Studies and an application of it to a small span of American chronology to reveal the interrelationships of as many facets of American culture as possible. For example, the student might be helped to see the interrelatedness of such things as philosophy, religion, literature, music, politics, science, business and industry, art, etc., in the United States during a single decade, the significance of that interrelatedness, and how to apply for himself the same approach to other periods. (Not limited to American Studies students. Can be counted as a humanities course for general degree requirements.)

AMERICAN STUDIES 303. Independent Study or Directed Reading in American Studies. (3) May be repeated once for credit, with permission of the student's adviser. (Not limited to American Studies students but should be under the supervision of an American Studies adviser or someone designated by him. Can be counted as a humanities course for general degree requirements.)

AMERICAN STUDIES 350. Topics in American Studies. (3) To be offered from time to time to supplement courses available, to offer an American focus not available elsewhere in the University, or to provide cross-disciplinary courses with an American focus. For example, courses on American literature and art, American philosophy and politics, etc., might be made available as their being offered is deemed appropriate. May be repeated for credit with permission of the student's adviser. (Not limited to American Studies students. Can be counted as a humanities course for general degree requirements.)

The following additional courses have been approved for the American Studies emphasis. However, appropriate deletions may be made from time to time. The American Studies advisers will have up-to-date lists. Also, considerations will be given to approval of other courses of special interest to the student, especially topics courses or individual study, if pertinent to American Studies.

(*Courses with an asterisk are especially recommended for American Studies students.)

English: 204, 341, 342, 343, 344, 345, 347, 348, 349, 355, 441, 445;

History: 125, 126, 371, 372, 374, 375, 377, 378, 379, 380, 381, 383, 384, 386, 389, 390, 391, 393, 414*, 415*, 416;

Economics: 101, 201, 202, 370;

Liberal Engineering: 311;

Afro-American and African Studies: 101, 102, 203, 204;

Philosophy: 317*;

Religious Studies: 303*, 331*, 332;

Criminal Justice: 438, 439, 449, 478, 479, 488, 489, 490;

Geography: 303*, 304, 320, 321;

Earth Science: 341*, 354;

Political Science: 110*, 301, 303, 305, 307, 309, 311, 312, 313, 314, 315, 316, 317, 318, 319, 321, 322, 323, 357;

Sociology: 212, 232, 271, 310, 313, 321, 325, 432, 480.

Department of Biology

Chairperson: Professor Trumbore
Professors: Hildreth, Matthews, Menhinick, Thomas
Professor Emeritus: Hechenbleikner
Associate Professors: Barden, Edwards, Thomas, Oliver, Ostrowski, Travis
Assistant Professors: Bashor, Brown, Goldstein
Mellichamp, Peters, Sandok, Vesper, Watts
Instructor: Langsam

B.A. IN BIOLOGY

A major in biology leading to the B.A. degree consists of 32 semester hours of biology including Biology 121, 122, 491 and one course each in three areas to be chosen from development, ecology, genetics and physiology. A minimum of five laboratory courses in biology is required. Additional requirements are 12 semester hours of chemistry with associated labs, including Chemistry 101 and 102; and six semester hours of mathematics. Care should be taken in selecting electives to ensure completion of University requirements.

Each biology major must show a proficiency through the second semester freshman level of a foreign language either by satisfactory completion of courses 101 and 102 in the language or by achieving a satisfactory score on an appropriate test.

B.S. IN BIOLOGY

In addition to the requirements for the B.A. degree, a student wishing to receive the B.S. degree is required to take eight additional hours in biology, for a total of 40 hours; Chemistry 231 and 232, with associated labs, in place of the chemistry elective; Physics 101 and 102, and three additional hours of mathematics.

PROGRAM APPROACH

The Biology programs can be tailored to fit the individual student's needs. Through course selection, the student can emphasize many areas within Biology: botany and horticulture; zoological sciences, including physiology and development; microbiological sciences; and environmental sciences. Opportunities for individual activity occur at every level from the available tutorial sessions with faculty in the freshman courses to honors research projects in the senior year.

SUGGESTED CURRICULUM FOR THE B.A. DEGREE IN BIOLOGY

Freshman Year

Biology 121	4	Biology 122	4
Chemistry 101, 101L	4	English 102	3
English 101	3	Chemistry 102, 102L	4
Mathematics 103	3	*Mathematics or Computer Science	3
Elective	3	Electives	3-4
	17		17-18

Sophomore Year

Biology 331, or elective	4	Biology elective	4
Chemistry elective	4	Electives	9-12
Electives	6-9		
	14-17		13-16

Junior Year

Biology electives	8	Biology electives	8
Electives	6-9	Electives	6-9
	14-17		14-17

Senior Year

Biology 491	1	Electives	15
Biology elective	4		
Electives	9-12		
	14-17		15

*Computer Science does not fulfill university requirements for mathematics.

SUGGESTED CURRICULUM FOR THE B.S. DEGREE IN BIOLOGY

Freshman Year

Biology 121	4	Biology 122	4
Chemistry 101, 101L	4	Chemistry 102, 102L	4
English 101	3	English 102	3
Mathematics 103	3	Mathematics 120, 141 or 122	3
Elective	3	Electives	3-4
	16-17		17-18

Sophomore Year

Biology 331, or elective	4	Biology elective	4
Chemistry 231, 231L	4	Chemistry 232, 232L	4
Mathematics 122 or 142 or Computer Science	3	Electives	6-9
Electives	3-6		
	14-17		14-17

Junior Year

Biology elective	4	Biology electives	8
Physics 101	4	Physics 102	4
Electives	6-9	Electives	3-6
	14-17		15-18

Senior Year

Biology electives	8	Biology 491	1
Electives	6-9	Biology electives	8
		Electives	6
	14-17		15

B.A. IN BIOLOGY WITH AN OPTION IN MEDICAL TECHNOLOGY*

A student may complete the departmental requirements for the B.A. degree in Biology in three years. Upon satisfactory completion of training in medical technology at a school of medical technology, which has been approved by the National Accrediting Agency for Clinical Laboratory Science for the Committee on Allied Health Education and Accreditation and affiliated with UNCC, the student may receive a B.A. degree in Biology from UNCC.* Gaining admission to an approved school of medical technology is the responsibility of the student. A maximum of 30 hours will be accepted from the school of medical technology. Up to eight hours may be applied toward the requirements for the major in biology. The student must take one course in two of the areas required for the biology major, and have at least a 2.0 average overall and in the major at the end of the junior year. The final 30 hours counted toward the degree and the last 12 hours counted toward the major prior to entering a school of medical technology must be taken at UNCC. The student may obtain information from the departmental adviser concerning Schools of Medical Technology at Mercy, Memorial or Presbyterian Hospitals in Charlotte, North Carolina, which are affiliated with UNCC in this program.

Freshman Year

Biology 121	4	Biology 122	4
Chemistry 101, 101L	4	Chemistry 102, 102L	4
Mathematics 101 or 103	3	Mathematics elective	3
English 101	3	English 102	3
Electives	3	Elective	3
	17		17

Sophomore Year

Biology 331	4	Biology elective	3-4
Chemistry 231, 231L	4	Chemistry elective	4
Electives	6-7	Electives	7-8
	14-15		14-16

Junior Year

Biology 311	4	Biology 491	1
Biology elective	3-4	Biology 473	3-4
Electives	7-8	Electives	10-12
	14-16		14-16

Senior Year

At an approved School of Medical Technology

*It is possible to obtain a B.S. degree by careful planning with the adviser.

MASTER OF SCIENCE IN BIOLOGY

The Master of Science in Biology is designed to provide broad training in the areas of development, ecology, physiology, microbiology and genetics. This breadth of training could meet many needs. The program, however, encourages specialization in the form of mandatory thesis research and course participation in specialty or related areas such as biochemistry. Specialization may provide a basis for more advanced studies or enable the student to choose, in addition to teaching, technical and/or health-related areas of vocation. Graduates of this program are expected to have both breadth of knowledge in the major biological areas and depth of knowledge and technical experience in a selected field of specialization.

Degree Requirements. The Master of Science in Biology requires successful completion of a minimum of 32 semester hours of course work approved and monitored by a supervisory committee from the department. Of these, at least 16 semester hours must be in courses open to graduate students only. Of the total, no more than eight hours may be credited for research. All courses offered for the degree must carry grades of "Satisfactory" or "Commendable" as defined in the current Graduate Grading system.

In addition to course work, each candidate for a degree must pass an oral candidacy examination. Finally, the candidate must prepare and present a thesis acceptable to the supervisory committee and the Director of Graduate Studies at least three weeks before the date of the final oral examination.

Admission to Candidacy. General academic regulations will apply to application for admission to candidacy. In addition to these the applicant should:

1. Have removed any identified entrance deficiencies by the time of application.
2. Have successfully completed the candidacy examination.
3. Taken at least 15 hours of graduate work with at least a B average.
4. Satisfied his supervisory committee that he is qualified to become a candidate, i.e., can fulfill the requirements successfully.

COURSE DESCRIPTIONS

Courses for Undergraduates

BIO 101. Principles of Biology. (4) Recommended as a general university elective, without credit toward the major. Fundamental principles of life. An introduction to biology with a human emphasis. Three lecture hours and one laboratory period of three hours a week. Audiotutorial presentations supplement the course.

BIO 121. Introductory Biology I. (4) Corequisite or prerequisite: Chemistry 101. The first course of a two-semester sequence in biology open to majors and non-majors. Integrated principles of the biology of cells, organisms and populations. Three lecture hours and one lab period of three hours per week.

BIO 122. Introductory Biology II. (4) Prerequisite: Biology 121. A continuation of Biology 121. Three lecture hours and one lab period of three hours per week.

BIO 161. Natural Resources. (2) Natural resource conservation and careers. Two lecture hours a week.

BIO 161L. Natural Resources Laboratory. (1) Corequisite: BIO 161. Does not satisfy the departmental lab requirement or the general degree requirement in Natural Science. Field trips and applied techniques in natural resource management. One laboratory period of three hours a week.

BIO 203. Bacteriology. (3) Prerequisites: BIO 101 or BIO 121 and one semester of chemistry. No credit toward a biology major. Basic physiology of bacteria, fungi, protozoa, and viruses, with emphasis on host-parasite interaction and the control and epidemiology of infectious diseases. Three lecture hours a week.

BIO 203L. Bacteriology Laboratory. (1) Prerequisite or corequisite: BIO 203. One laboratory period of three hours a week.

BIO 205. Human Anatomy and Physiology. (3) Prerequisite: BIO 101 or equivalent and one year of high school chemistry or one semester of college chemistry. No credit toward a biology major. Basic fundamentals of the anatomy and physiology of the human body as an integrated unit. Three lecture hours a week.

BIO 205L. Human Anatomy and Physiology Laboratory. (1) Prerequisite or corequisite: BIO 205. One laboratory period of three hours a week.

BIO 211. Plant Biology. (4) Prerequisite: open to majors and non-majors; one course in biology prerequisite for non-majors. The morphology, function, reproduction, phylogeny and ecology of plants. Three lecture hours and one laboratory period of three hours a week.

BIO 221. Animal Biology. (4) Prerequisite: open to majors and non-majors; one course in biology prerequisite for non-majors. The morphology, function, development, phylogeny and ecology of the principle invertebrate and vertebrate types. Three lecture hours and one laboratory period of three hours a week.

Courses for Advanced Undergraduates (and Graduates as Designated)

BIO 301. Natural History. (4) No credit toward a biology major. Plant and animal identification, ecological aspects of plant and animal distribution and the importance of conservation of natural resources. Three lecture hours and one laboratory period of three hours a week.

BIO 311. Microbiology. (3) (3G) Prerequisites: BIO 331 and one course in organic chemistry. Morphology, metabolism, physiology and pathogenicity and ecology of bacteria, viruses and related micro-organisms. Three lecture hours a week.

BIO 311L. Microbiology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 311. One laboratory period of three hours a week.

BIO 317. Horticulture. (4) Prerequisite: BIO 101 or 121, or consent of department. Principles of horticulture, greenhouse management, environmental factors, production and maintenance of cultivars, and landscaping. Lab involves greenhouse work and field trips. Three lecture hours and one laboratory period of three hours per week.

BIO 319. Plant Systematics. (4) (4G) Prerequisite: BIO 122. Identification and classification of vascular plants, including experimental concepts of speciation. Three lecture hours and one laboratory period of three hours each week.

BIO 321. Vertebrate Zoology. (4) (4G) Prerequisite: BIO 122 or consent of department. Taxonomy, anatomy, physiology and life histories of vertebrates, with emphasis on local forms. Three lecture hours and one laboratory period of three hours a week. 321A. Icthyology; 321B, Icthyology Lab; 321C. Herpetology; 321D. Herpetology Lab; 321E. Ornithology; 321F. Ornithology Lab; 321G. Mammalogy; 321H. Mammalogy Lab.

BIO 323. Parasitology. (4) (4G) Prerequisite: BIO 122. Morphology, life cycles, ecology, taxonomy and economic importance of parasites. Three lecture hours and one laboratory period of three hours a week.

BIO 325. Invertebrate Zoology. (4) (4G) Prerequisite: BIO 122. Taxonomy, anatomy, physiology and life histories of selected invertebrates. Three lecture hours and one laboratory period of three hours a week.

BIO 331. Genetics. (3) (3G) Prerequisite: BIO 122. Basic concepts of heredity; principles of classical and molecular genetics. Three lecture hours a week.

BIO 331L. Genetics Laboratory. (1) (1G) Prerequisite or corequisite: BIO 331. One laboratory period of three hours a week.

BIO 333. Plant Growth and Development. (4) (4G) Prerequisite: BIO 122. Growth and development of plants with emphasis on chemical and environmental control of structural differentiation. Three lecture hours and one laboratory period of three hours a week.

BIO 335. Human Genetics. (3) Prerequisite: BIO 101 or 121. The inheritance of physical and mental characteristics in man. Effects of mutation, selection, migration and environment are considered. Credit allowed toward major but does not fulfill area requirement. Three lecture hours a week.

BIO 338. Embryology. (3) (3G) Prerequisite: BIO 122 and BIO 331. Developmental processes occurring chiefly during gametogenesis, fertilization, early embryogenesis and organogenesis. Three lecture hours a week.

BIO 338L. Embryology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 338. One laboratory period of three hours a week.

BIO 345. Comparative Vertebrate Anatomy. (4) (4G) Prerequisite: BIO 122. Comparative studies of the anatomy, physiology and functional adaptations of selected vertebrates with emphasis on evolutionary developments, especially in mammals. Three lecture hours and one laboratory period of three hours a week.

BIO 347. Histology. (4) (4G) Prerequisites: BIO 122 and CHE 102. Animal tissues and organs; techniques of preparing tissues for analysis. Two lecture hours and two laboratory periods of two hours a week.

BIO 352. Vertebrate Paleontology. (3) (3G) Prerequisite: BIO 122 or consent of department. Evolution of vertebrate animals from the first fishes to man. Three lecture hours a week.

BIO 355. Animal Behavior. (3) (3G) Prerequisite: BIO 122 or consent of department. An ethological approach to how animals respond to their environment. Causation, development and adaptive significance of behavior in social systems. Three lecture hours a week.

BIO 355L. Animal Behavior Laboratory. (1) (1G) Prerequisite or corequisite: BIO 355. One laboratory period of three hours a week.

BIO 361. Ecology. (3) (3G) Prerequisites: BIO 122 and one course in chemistry. Interrelationships of organisms and their environment. Three lecture hours a week.

BIO 361L. Ecology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 361. One laboratory period of three hours per week.

BIO 369. Environmental Problems. (3) (3G) Prerequisite: one semester of biology. Air, water and land pollution; resource depletion; and overpopulation. Three lecture hours a week.

BIO 373. Plant Physiology. (4) (4G) Prerequisites: BIO 122, BIO 331. Metabolic and physiological processes of plants and conditions which affect or regulate these processes. Three lecture hours and one laboratory period of three hours a week.

BIO 375. Animal Physiology. (4) (4G) Prerequisites: BIO 122 and CHE 102. Fundamental control mechanisms which operate to maintain the homeostatic state. Three lecture hours and one laboratory period of three hours a week.

BIO 391. Radiation Biology. (3) (3G) Prerequisites: BIO 122 and CHE 231. Biological effects of ionizing radiation on living matter. Three lecture hours a week.

BIO 395. Special Topics in Biology. (1-4) (1G-4G) May be repeated for credit. Prerequisites and credit hours vary with topics. Used to comply with requests for special topics and advanced studies in biology. Lecture hours and laboratory hours will vary with the courses taught.

BIO 397. Internship in Community Education and Service. (3) Prerequisites: junior standing, acceptance into the program and approval of the department. A project oriented, service-learning internship with cooperating community organizations. The Department of Biology has the option of recognizing this credit as fulfilling departmental requirements and granting permission to repeat for credit.

BIO 401. Integrative Studies in Biology. (3) No credit toward a biology major, except one hour which may be substituted for Biology 491. A course for, but not limited to, persons preparing to teach grades 7-12. An integration of the attitudes and techniques necessary to teach laboratory-oriented courses. Three lecture hours a week.

BIO 413. Epidemiology. (3) (3G) Prerequisite: BIO 311, or 323, or 361. Concepts of epidemiology including disease agents and disease transmission; patterns of epidemic and endemic diseases. Three lecture hours a week.

BIO 431. Molecular Biology. (3) (3G) Prerequisites: BIO 331 and CHE 232. Structural and functional interaction of nucleic acids and proteins in the replication, transcription and translation of genetic material. Three lecture hours a week.

BIO 431L. Gene Products Analysis Laboratory. (1) (1G) Prerequisite or corequisite: BIO 431. One laboratory period of three hours per week.

BIO 437. Cytogenetics. (4) (4G) Prerequisite: BIO 331. Plant and animal cells, with emphasis on problems of chromosomal organization, function and behavior including the role of chromosome number and abberrations in speciation and evolution. Three lecture hours and one laboratory period of three hours a week.

BIO 451. Evolution. (3) (3G) Prerequisite: BIO 331 or 335. Theories of evolution and forces which affect gene frequencies. Three lecture hours a week.

BIO 455. Animal Communication. (3) (3G) Prerequisite: BIO 355 or PSY 310 or consent of department. Behavioral and structural analysis of sensory mechanisms involved in the transfer of information between individuals with emphasis on bioacoustics. Communicative strategies, analytical techniques, and sound identification of selected species. Three lecture hours and one laboratory period of three hours a week.

BIO 457. Wildlife Biology. (3) (3G) Prerequisite: BIO 361. Concepts, principles and techniques of wildlife biology. Identification and life histories with emphasis on the value, study, attraction, management, conservation and control of wildlife species. Three lecture hours a week.

BIO 457L. Wildlife Biology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 457. One laboratory period of three hours a week plus field trips.

BIO 461. Limnology and Oceanography. (4) (4G) Prerequisite: two courses in chemistry. Geological, physical, chemical and biological aspects of lakes, streams, estuaries and oceans. Three lecture hours and one laboratory period of three hours a week.

BIO 462. Community Ecology. (3) (3G) Prerequisite: BIO 361. Community structure, species composition, energy flow, nutrient cycles, and succession. Three lecture hours a week.

BIO 462L. Community Ecology Laboratory. (1) (1G) Corequisite: BIO 462. Quantitative study of a forest ecosystem on the UNCC Ecological Reserve. One laboratory period of three hours a week.

BIO 473. Immunology. (3) (3G) Prerequisites: BIO 311 and CHE 231. Basic concepts of disease resistance in mammals; non-specific defense mechanisms, physiochemical properties and interactions of antigens and antibodies, and cell-associated defense phenomena. Three lecture hours a week.

BIO 473L. Immunology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 473. One laboratory period of three hours a week.

BIO 474. Virology. (4) (4G) Prerequisites: BIO 311, 311L and CHE 232. Morphology, classification, genetics and pathogenicity of bacterial and animal viruses. Three lecture hours and one laboratory period of three hours a week.

BIO 475. Endocrinology. (3) (3G) Prerequisite: BIO 375 and CHE 231. Endocrine glands and their physiological roles in metabolism, growth and reproduction. Three lecture hours a week.

BIO 475L. Endocrinology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 475. One laboratory period of three hours a week.

BIO 476. Comparative Invertebrate Physiology. (3) (3G) Prerequisite: BIO 122 and CHE 231. Maintenance of body fluids; acquisition, processing and distribution of nutrient materials; gas exchange; movement and coordination. Three hours a week.

BIO 476L. Comparative Invertebrate Physiology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 476. One laboratory period of three hours a week.

BIO 477. Cell Physiology. (3) (3G) Prerequisites: BIO 121 and CHE 231. The fundamental physiochemical properties of cells. Three lecture hours a week.

BIO 484. Radioisotope Techniques. (4) (4G) Prerequisite: one semester of chemistry. Use of radioisotopes in science; properties of sub-atomic particles, instrumentation, safety procedures and radioisotope labeling. Three lecture hours and one laboratory period of three hours a week.

BIO 491. Seminar. (1) (May be repeated for credit.) Required of all majors, normally taken during the senior year. Includes a standardized examination in biology. Student presentation of oral and written reports from pertinent biological literature. One hour per week.

BIO 495. Honors Research. (3) Independent honors project.

BIO 496. Honors Thesis. (3) Prerequisite: BIO 495. Preparation of an honors thesis.

BIO 497. Investigations in Biology. (1-4) May be repeated for credit. Prerequisite: consent of the department. A course designed to allow junior and senior biology majors to initiate research projects in their respective fields of interest. Maximum credit toward major: two hours for B.A.; four hours for B.S.

BIO 538. Mechanisms in Development. (3) (3G) Prerequisite: BIO 338, CHE 231 or consent of department. Cellular and molecular bases of differentiation; an exploration of the experimental analysis of causal and controlling factors in development. Three lecture and discussion hours a week.

BIO 552. Advanced Microbiology. (4) (4G) Prerequisite: BIO 311 and 311L. A laboratory-oriented course covering such topics in general microbiology as the preparation and use of cell-free systems, isolation of auxotrophs, transport mechanisms, etc. Lectures in microbial metabolism and physiology and reading on recent developments in microbiology. Two, one-hour lectures and two, three-hour laboratory periods per week.

BIO 557. Pathogenic Bacteriology. (3) (3G) Prerequisite: BIO 311 or equivalent and CHE 231. Cellular and molecular interactions of mammalian hosts with procaryotic parasites. Three lecture hours a week.

BIO 557L. Pathogenic Bacteriology Laboratory. (1) (1G) Prerequisite: BIO 311L or equivalent. Prerequisite or corequisite: BIO 557. One laboratory period of three hours a week.

BIO 561. Population Ecology. (3) (3G) Prerequisite: BIO 361. Population growth, regulation and reproductive strategies; competition and predator-prey interactions; evolutionary ecology. Three lecture hours a week.

BIO 561L. Population Ecology Laboratory. (1) (1G) Corequisite: BIO 561. One laboratory period of three hours a week.

BIO 572. Marine Microbiology. (4) (4G) Prerequisite: BIO 311 and BIO 311L. Bacteria, fungi and viruses of marine origin, and their response to the salt, temperature, pressure and nutrient environment of the ocean. Roles of marine microorganisms in public health, pollution and fouling. Three lecture hours and one laboratory period of three hours a week.

BIO 577. Neurobiology. (3) (3G) Prerequisite: BIO 375 or consent of department. Physiology and anatomy of nervous systems. Three lecture hours a week.

BIO 577L. Neurobiology Laboratory. (1) (1G) Prerequisite or corequisite: BIO 577. One laboratory period of three hours a week.

Courses for Graduate Students Only

The following courses are designed to allow the student to obtain an in-depth exposure to certain areas in biology. The tutorial courses will provide a foundation for the student's research endeavor; it may be tailored to supplement the student's research endeavor or tailored to supplement the student's specialization area. Courses numbered 691, 693, 695 and 697 may be repeated for credit.

BIO 691. Seminar. (1-2G) Two hours are required. Topics of current emphasis in biology.

BIO 693. Special Topics in Biology. (1-4G) May be repeated for credit. Prerequisite: consent of department. Courses in selected topics and advanced studies in biology. Lecture and laboratory hours will vary with the courses taught.

BIO 695. Tutorial (1-4G) Directed study in areas of specialization in biology and related fields.

BIO 697. Research and Thesis. (1-8G)

Department of Chemistry

Chairperson: Professor Gibson
Charles H. Stone Professor of Chemistry: Burson
Professors: Bush, Crosthwaite, DuBois, Kuppers
Professor Emeritus: Norman
Associate Professors: Howard, Jones, Mattingly, Rillema, Walsh
Assistant Professors: Cassen, Moyers

B.S. IN CHEMISTRY

Students planning to start careers as chemists with the baccalaureate degree and those who intend to prepare for graduate study in chemistry should pursue the B.S. degree.

A major in chemistry leading to the B.S.* degree consists of a minimum of 44 semester hours of chemistry, among which must be included Chemistry 101, 102, 101L, 102L (or 106L), 231, 232, 231L, 232L, 311, 341, 342, 341L, 342L, 411, 421, 431 and two semesters of Chemistry 495. Related work in mathematics and physics must include Mathematics 141, 142, and 241 or 271 and Physics 221, 231, 251 and 252. Two years of German or Russian language instruction are required for the B.S. degree.

The B.S. curriculum can be tailored to fit individual needs of those preparing for medical and dental schools, those considering graduate work in sciences closely related to chemistry and those desiring a liberal education with concentration in chemistry and related natural sciences.

B.A. IN CHEMISTRY

A major in chemistry leading to the B.A. degree consists of a minimum of 28 semester hours of chemistry among which must be included Chemistry 101, 102, 101L, 102L (or 106L), 231, 232, 231L, 232L and 311. Related work must include Mathematics 141, 142 and a complete sequence of physics courses selected from one of the following options A, B or C: A. Physics 101, 102; B. Physics 221, 231, 251, 252; or C. Physics 221, 252, 102. Credit towards the 28 hours required for the B.A. degree will not be given for either CHE 490 or 495. Topics courses, such as CHE 390 and 590, cannot be included within the 28 hours without prior departmental approval.

Students who complete a major in chemistry automatically meet the chemistry subject matter requirements, on the secondary level, for teacher certification in North Carolina. Students seeking teacher certification should consult a co-adviser in the College of Human Development and Learning for detailed planning of their professional education.

Chemical engineering, dentistry, medicine, or pharmacy students have the option of majoring in chemistry. Interested students should consult the catalog section on preparation for professional schools for the appropriate suggested curriculum.

B.A. IN CHEMISTRY WITH AN OPTION IN MEDICAL TECHNOLOGY

A student may complete the departmental requirements for the B.A. degree in Chemistry in three years. Upon satisfactory completion of training in medical technology at a school of medical technology which has been approved by the Accrediting Agency for Clinical Laboratory Science for the Committee on Allied Health Education and Accreditation and UNCC, the student may receive a B.A. degree in Chemistry from UNCC. Gaining admission to an approved school of medical technology is the responsibility of the student. A maximum of 30 hours will be accepted from the school of medical technology. Four of these hours will apply toward the requirements for the major in chemistry. The student must have at least a 2.0 average, overall and in the major, at the end of the junior year. The final 30 hours counted

*The B.S. degree program is approved by the Committee on Professional Training of the American Chemical Society.

toward the degree and the last 12 hours counted toward the major prior to entering a school of medical technology must be taken at UNCC. The student may obtain information from his departmental adviser concerning those Schools of Medical Technology at Mercy, Memorial or Presbyterian Hospitals in Charlotte, North Carolina, which are affiliated with UNCC in this program. Individual applications for admission to a particular school of medical technology must be submitted.

HONORS PROGRAM IN CHEMISTRY

The recommended curriculum for the B.S. degree in Chemistry includes independent study and seminar presentation during the final year of study. To obtain a degree with Honors in Chemistry, the student must complete two semesters of independent research with a grade of Pass Honors, two semesters of the senior seminar with grades of Pass Honors and at least one junior level laboratory course with a grade of Pass Honors. The student will formally enter the honors program at the beginning of his junior year or halfway through his junior year. Consideration for admission to the program may be initiated by the student or by any faculty member. The Honors Committee of the Chemistry Department will formally approve admission.

RECOMMENDED CURRICULUM FOR THE B.A. DEGREE IN CHEMISTRY

Freshman Year

Chemistry 101*	3	Chemistry 102*	3
Chemistry 101L*	1	Chemistry 106L or 102L*	1
English 101	3	English 102	3
Mathematics 103**	3	Mathematics 141**	4
Social Science	3	Social Science	3
Elective	3	Elective	3
	16		17

Sophomore Year

Chemistry 231	3	Chemistry 232	3
Chemistry 231L	1	Chemistry 232L	1
Mathematics 142	4	German 102	4
German 101	4	Humanities	3
Humanities	3	Electives	6
	15		17

Junior Year

Chemistry 311	4	Chemistry	3
Mathematics	3	Mathematics	3
Physics	4	Physics	4
German 201	4	German 202	4
		Elective	3
	15		17

Senior Year

Chemistry	4	Chemistry	4
Electives	12	Electives	12
	16		16

RECOMMENDED CURRICULUM FOR THE B.S. DEGREE IN CHEMISTRY

Freshman Year

Chemistry 101*	3	Chemistry 102*	3
Chemistry 101L*	1	Chemistry 106L*	1
English 101	3	English 102	3
Mathematics 141**	4	Mathematics 142**	4
German 101	4	German 102	4
	15		15

Sophomore Year

Chemistry 231	3	Chemistry 232	3
Chemistry 231L	1	Chemistry 232L	1
Mathematics 241 or 271	3	Physics 231	3
Physics 221	3	Physics 252	2
Physics 251	1	German 202	4
German 201	4	Electives	3
	15		16

Junior Year

Chemistry 341	3	Chemistry 342	3
Chemistry 341L	1	Chemistry 342L	1
Chemistry 311	4	Chemistry 411	4
Humanities	3	Humanities	3
Social Science	3	Social Science	3
	14		14

Senior Year

Chemistry 421	4	Chemistry 431	4
Chemistry 490	2	Chemistry 490	2
Chemistry 495	1	Chemistry 495	1
Electives	9	Electives	9
	16		16

*Students who can demonstrate to the Chemistry Department proficiency in Chemistry 101, 102, 101L and 102L (Principles of Chemistry) may start with Chemistry 231 and 231L (See Credit by Examination *page 64*).

**For proper placement in the mathematics sequence, the student must consult the Mathematics Department.

RECOMMENDED CURRICULUM FOR THE B.A. IN CHEMISTRY WITH AN OPTION IN MEDICAL TECHNOLOGY

Freshman Year

Chemistry 101*	4	Chemistry 102*	3
Chemistry 101L*	1	Chemistry 106L*	1
Mathematics 103**	3	Mathematics 141**	4
English 101	3	English 102	3
Biology 121	4	Biology 122	4
	15		15

Sophomore Year

Chemistry 231	3	Chemistry 232	3
Chemistry 231L	1	Chemistry 232L	1
Mathematics 142	4	Social Science	3
Social Science	3	Humanities	6
Physics 101	4	Physics 102	4
	15		17

Junior Year

Chemistry 311	4	Chemistry 312	4
Biology 311	3	Biology 331	4
Biology 311A	1	Biology 475	4
Elective	4	Elective	3
Chemistry 375	3		
	15		15

TOTAL 90-92

Senior Year

At an approved school of medical technology.

*The B.S. degree program is approved by the Committee on Professional Training of the American Chemical Society.

*Students who can demonstrate to the Chemistry Department proficiency in Chemistry 101, 102, 101L and 102L (Principles of Chemistry) may start with Chemistry 231 and 231L (See Credit by Examination, page 64).

**For proper placement in the mathematics sequence, the student must consult the Mathematics Department.

MASTER OF SCIENCE IN CHEMISTRY

The program leading towards the degree of Master of Science in Chemistry is a research-based program, requiring courses of a broad, general nature. Major emphasis is placed upon the research project and required thesis.

Degree Requirements

The candidate for the degree must present a minimum of 30 semester hours of which at least 15 semester hours must be 600-level courses which are open to graduate students only. The remaining credit may be earned by taking courses approved for graduate credit. Required courses include CHE 411, 421, 431, 680 and 690. Two semester hours of graduate seminar, CHE 680, and at least one, but up to 16 semester hours of research and thesis credit, CHE 690, must be presented. In addition, six semester hours from the course group CHE 615, 625, 635, 645, 646 or 660 are required. Departmental approval is necessary before CHE 660 credit can be used to satisfy this requirement. Any 300 level or higher mathematics or physics course except those designed for a professional education sequence may be taken for graduate credit. Well prepared students, particularly those with degrees from ACS approved programs will normally achieve CHE 411, 421, and 431 through placement examinations administered after admission. In those cases, CHE 411, 421, and 431 hours may be replaced by research, CHE 690, or by elective courses. A quality point average of 3.0 (A = 4.0) is required for the degree. In addition, the following specific requirements must be fulfilled:

1. Satisfactory performance on a reading examination in the chemical literature in Russian, German or French. This requirement will be waived with the presentation of passing grades for the first two college years (four semesters or their equivalent) of one of the three acceptable languages. As an alternative to the language requirement, the student may offer proficiency in computer language. Decisions as to the acceptability of the level of computer proficiency will be made by the Chemistry Department.
2. Acceptance of the thesis within six calendar years after admission into the M.S. program as a degree student. This includes a successful defense of the written thesis before a special thesis committee established by the Chemistry Department. The thesis committee shall consist of no fewer than four persons, at least one of whom must be from a department other than Chemistry.

Approval of the program of each student and monitoring his/her progress toward the degree shall be the responsibility of the student's research adviser. Prior to the selection of a research adviser, graduate student progress is monitored by the Departmental Graduate Committee.

Continued Enrollment. A student in the chemistry M.S. program is required to maintain satisfactory progress toward the degree. Continued enrollment is at all times subject to review on the basis of academic record. This review is performed by the Departmental Graduate Committee.

COURSE DESCRIPTIONS

Separate lecture and laboratory sections — Although the laboratory and lecture sections of CHE 101, 102, 103, 104, 231 and 232 are taught as separate courses, it is strongly recommended that students take the appropriate laboratory concurrently with the lecture. Students with severe scheduling problems or students with course programs which do not require the laboratory may take the lecture without the laboratory. Retention of a laboratory after withdrawing from its associated lecture requires departmental approval.

Students using CHE 101 and 102 or CHE 103 and 104 to satisfy the *University Requirements* for the B.A. and B.S. Degrees (page 72) must also take CHE 101L and 102L, or CHE 103L and 104L, respectively.

Courses for Undergraduates

CHE 101. Principles of Chemistry. (3) Prerequisite or corequisite: MAT 101 or 103. A principles-oriented course for science majors. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Two lecture hours and one recitation hour per week.

CHE 101L. Principles of Chemistry Laboratory. (1) Prerequisite or corequisite: CHE 101. Experimental investigations involving the fundamental postulates and laws of chemistry. One laboratory period of three hours per week.

CHE 102. Principles of Chemistry. (3) Prerequisite: CHE 101. Continuation of CHE 101. Two lecture hours and one recitation hour per week.

CHE 102L. Principles of Chemistry Laboratory. (1) Prerequisites: CHE 101 and 101L. Prerequisite or corequisite: CHE 102. Continuation of CHE 101L. One laboratory period of three hours per week.

CHE 103. General Chemistry. (3) Designed primarily for non-science majors; does not qualify as a prerequisite for any course other than CHE 104. Fundamentals of chemistry and selected topics from inorganic and nuclear chemistry. Three hours per week. (Credit for both 101 and 103 will not be given.)

CHE 103L. General Chemistry Laboratory. (1) Prerequisite or corequisite: CHE 103. Laboratory investigations into the nature of inorganic compounds. One laboratory period of three hours per week. (Credit for both 101L and 103L will not be given.)

CHE 104. General Chemistry. (3) Designed primarily for non-science majors; does not qualify as a prerequisite for any other chemistry course. Prerequisite: CHE 103. Continuation of CHE 103, with emphasis on organic chemistry and selected topics in biochemistry. Three lecture hours per week. (Credit for both 102 and 104 will not be given.)

CHE 104L. General Chemistry Laboratory. (1) Prerequisites: CHE 103 and 103L. Prerequisite or corequisite: CHE 104. Continuation of CHE 103L, with emphasis on the reactions and characterization of organic compounds. One laboratory period of three hours per week. (Credit for both 102L and 104L will not be given.)

CHE 106L. Introduction to Modern Laboratory Methods. (1) Prerequisite or corequisite: CHE 102. One laboratory period of three hours per week. The laboratory will consist of open-ended studies on topics compatible with the CHE 102 lecture materials. Students use techniques common to those used in current chemical research; modern instrumentation is used extensively. The background needed to utilize minicomputers in data acquisition and data reduction is presented. The course is intended for students planning to take additional chemistry courses and can be substituted for the CHE 102L requirement for all degrees in chemistry.

CHE 225. Inorganic Chemistry. (3) Prerequisite: CHE 102. Descriptive inorganic chemistry including acid-base and non-aqueous solvent concepts. Three lecture hours a week.

CHE 231. Organic Chemistry. (3) Prerequisite: CHE 102. Descriptive principles and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. Three lecture hours per week.

CHE 231L. Organic Chemistry Laboratory. (1) Prerequisites: CHE 102 and CHE 102L. Prerequisite or corequisite: CHE 231. Laboratory investigations into the physical and chemical properties of organic compounds. One laboratory period of three hours per week.

*Students who can demonstrate to the Chemistry Department proficiency in Chemistry 101, 102, 101L, and 102L (Principles of Chemistry) may start with Chemistry 231 and 231L. (See Credit by Examination, page *64*).

**For proper placement in the mathematics sequence, the student must consult the Mathematics Department.

CHE 232. Organic Chemistry. (3) Prerequisite: CHE 231. Continuation of CHE 231. Three lecture hours per week.

CHE 232L. Organic Chemistry Laboratory. (1) Prerequisites: CHE 231 and 231L. Prerequisite or corequisite: CHE 232. Continuation of CHE 231L. One laboratory period of three hours per week.

CHE 241. Survey of Physical Chemistry. (3) Prerequisites: CHE 102, 102L, MAT 120 or one semester of calculus (high school or higher). Phy 101 or one semester of physics (high school or higher). A course designed for students in the life sciences or others desiring a one-semester survey of the physical aspects of chemistry. Application of thermodynamics to chemical reactions, energy transfer processes, and chemical and physical equilibria; the study of reaction rates and mechanisms; structure of gases, liquids and solids; molecular structure and spectroscopy. Three lecture hours per week.

CHE 311. Quantitative Analysis. (4) Prerequisite: CHE 102, 102L. Introductory course in quantitative and analytical chemistry. Principles of equilibrium, classical and simple instrumental approaches are considered. Two lecture hours and two laboratory periods of three hours each week.

CHE 312. Modern Separation Techniques. (4) Prerequisites: CHE 231, 231L and 311. A theoretical and application course in modern separation techniques with emphasis on liquid and gas chromatography. Two lecture hours and two laboratory periods of three hours each week.

CHE 341. Physical Chemistry. (3) Prerequisites: CHE 102, 102L, PHY 231 and 252. Prerequisite or corequisite: MAT 241 or 271. The application of classical thermodynamics and the phase rule to chemical equilibrium; electrochemistry; the kinetic theory of gases and elements of statistical mechanics applied to chemical processes; atomic and molecular structure interpreted in quantum mechanical terms. Three lecture hours per week.

CHE 341L. Physical Chemistry Laboratory. (1) Corequisite: CHE 341. One laboratory period of three hours per week.

CHE 342. Physical Chemistry. (3) Prerequisite: CHE 341. Continuation of CHE 341. Three lecture hours per week.

CHE 342L. Physical Chemistry Laboratory. (1) Corequisite: CHE 342. Prerequisite: 341L. Continuation of CHE 341L. One laboratory period of three hours per week.

CHE 375. Introductory Biochemistry. (3) Prerequisite: CHE 232. The chemical constitution of living matter, biochemical processes. Three lecture hours per week.

CHE 375L. Introductory Biochemistry Laboratory. (1) Prerequisite: CHE 232L. Corequisite: CHE 375. A series of laboratory investigations into the chemical constitution of living matter and the biochemical processes of life, chosen to introduce the student to the experimental techniques of modern biochemical research. Eleven four-hour laboratory periods per semester.

CHE 390. Special Topics in Chemistry. (1-4) Prerequisite: consent of department. May be repeated for credit. Lecture and/or laboratory hours will vary with the nature of the course taught. Topics chosen from analytical, biochemistry, inorganic, organic and physical chemistry.

CHE 397. Internship in Community Education and Service. (1-3) Prerequisites: junior standing, acceptance into the program and approval of the department. A project oriented, service learning internship with cooperating community organizations. Credit toward the B.A. and B.S. degrees in chemistry will not be given for this course. May be repeated for credit with permission of the Chemistry Department. This course is offered on a pass/no credit basis only.

Courses for Advanced Undergraduates (and Graduates as Designated)

CHE 411. Instrumental Analysis. (4) (4G) Prerequisites: CHE 311, 341, 341L. A discussion of selected modern instrumental methods of analysis. The discussion includes theory and practice, with considerable attention given to the instrument and elementary electronics involved in the techniques. Two lecture hours and two three-hour laboratory periods per week.

CHE 412. Applied Minicomputer Interfacing in Chemistry. (4) (4G) Prerequisite: Departmental approval. Three lecture hours and one laboratory period of three hours each week. The background needed to apply minicomputer interfacing in chemical research, including machine language programming unique to DE PDP-8 family minicomputers and elementary digital electronics will be presented, and application of computer automation in chemical research will be discussed. The laboratory will involve individual projects; the design, development and implementation of the software and hardware needed to solve an interfacing project selected by the student. The course is designed to provide a foundation for the use of computer automation in research. No background in programming or electronics is required.

CHE 421. Advanced Inorganic Chemistry. (4) (4G) Prerequisite: CHE 342, 342L. Theoretical inorganic chemistry including the application of physico-chemical principles to the study of inorganic systems. Laboratory work involves inorganic preparations and characterization techniques. Three lecture hours and one laboratory period of three hours a week.

CHE 431. Advanced Organic Chemistry. (4) (4G) Prerequisites: CHE 232, 232L and 311. Recent developments in organic chemistry. Laboratory techniques of organic chemistry with emphasis on qualitative organic analysis including instrumental methods. Two lecture hours and two laboratory periods of three hours each week.

CHE 445. Advanced Physical Chemistry. (3) (3G) Prerequisite: CHE 342. Topics selected from quantum chemistry and/or statistical thermodynamics. Three lecture hours per week.

CHE 475. Physical Biochemistry. (3) (3G) Prerequisites: CHE 232, 232L and 341. Colloid systems, equilibria in biological fluids, mass and energy transport in fluids and in association with membranes, energy storage and dissipation with relation to specific chemical bonding, enzyme kinetics. Three lecture hours per week.

CHE 490. Independent Study and Research. (1-4) Prerequisite: consent of the instructor overseeing the research. Independent study and research. A senior project in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry or biochemistry; introduction to research. Hours in consideration, library and laboratory to be determined. May be repeated for credit.

CHE 495. Chemistry Seminar. (1) Prerequisite: senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required.

CHE 590. Special Topics in Chemistry. (1-4) (1G-4G) Prerequisite: consent of department. May be repeated for credit. Lecture and/or laboratory hours will vary with the nature of the course taught. Selected topics in chemistry.

Courses for Graduate Students Only

CHE 615. Advanced Analytical Chemistry. (3G) Prerequisite: CHE 411. The application of modern analytical methods to chemical problems. Emphasis is upon the chemical information, particularly structural, obtainable from these techniques. Three lecture hours per week.

CHE 625. Theoretical Inorganic Chemistry. (3G) Prerequisite: CHE 421. Group theoretical treatment of current theories of inorganic chemistry. Topics covered: Ligand field theory, molecular orbital theory for complex ions, electronic spectra of complex ions and the magnetic properties of complex ions. Three lecture hours per week.

CHE 635. Advanced Organic Chemistry. (3G) Prerequisite: CHE 431. A qualitative discussion of modern mechanistic interpretation of the relations between structure and reactivity. Special emphasis is placed on the role of reactive intermediates such as carbonium ions, carbanions, carbenes and radicals. Three lecture hours per week.

CHE 645. Chemical Thermodynamics. (3G) Prerequisite: CHE 342. The postulatory basis of classical thermodynamics. Problems in chemical thermodynamics. The use of statistical mechanics for calculating thermodynamic functions. Three lecture hours per week.

CHE 646. Rates and Mechanisms. (3G) Prerequisite: CHE 342. Consideration of chemical kinetics and mechanism schemes, particularly those of current interest. Three lecture hours per week.

CHE 650. Seminar-Internship. (Variable credit, up to 3G) Required for all teaching assistants and for those students planning teaching careers. Prerequisite: consent of department. Consideration of topics and trends in chemical education. Opportunities for supervised experience in the teaching of college chemistry will be offered. Graded *Pass/No Credit*. May be repeated for credit.

CHE 660. Special Topics and Investigations. (Variable credit, up to 3G) Prerequisite: consent of department. Directed study of topics of current chemical interest. May be repeated for credit.

CHE 680. Research Seminar. (1G) Individual investigation and exposition of the results. May be repeated for credit.

CHE 680P. Research Seminar. (1G) Discussion of recent developments and special topics in chemistry. Graded *Pass/No Credit*.

CHE 690. Research and Thesis. (Variable credit, up to 16G) Laboratory research for the thesis.

Department of Creative Arts

Interim Chairperson: Professor Wrigley

Art
Professors: Anderson, Spence
Associate Professors: Bringle, Byrum, Hill, Kampen, Mackillop, Strawn
Assistant Professors: Loyd, Tite, Tweedy

Dance
Associate Professor: Zimmermann
Assistant Professor: Sofras

Music
Professors: Booth, Mathis
Associate Professors: Appleton, Dailey, Dillard, Gehner, Glazer
Mosley, Turner
Assistant Professor: Kennedy

Theatre
Associate Professors: Beasley, Rackley, Reed
Assistant Professors: Croghan, McLaney

The Bachelor of Creative Arts Degree (BCA) is awarded to students who have fulfilled the program of study for that degree. The student will choose either dance, music, theatre, the visual arts, or a combination of these areas as the major focus of study.

The minimum residence requirement for a Bachelor of Creative Arts Degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. Because of the unique nature of the program, students should expect to spend at least four semesters as a Creative Arts degree student prior to graduation.

Teacher certification is available in dance and the visual arts. Students seeking certification in addition to the BCA degree should declare this intent to the area certification liaison person by the first semester of his/her sophomore year. A later decision to seek certification along with the BCA degree may result in a graduation date delayed by one or more semesters.

The BCA Degree Programs are structured upon a number of premises which, in turn, form the unique goals of the program. These premises/goals are as follows:

1. that the highest priority of an undergraduate university program in the arts should be to develop within its students the ability to identify artistic problems (or to articulate needs) and to solve them (or to structure experiences leading toward their resolution);
2. that one accumulates a wide range of data and moves toward varied experiences in response to a specific need or problem;
3. that a university program focused through the arts should lead its students to an awareness of the interrelatedness of all forms of knowledge and of the shared elements of the creative process, and should provide the opportunity to participate regularly and meaningfully in that creative process.

The Bachelor of Creative Arts Degree Programs are structured in response to these premises/goals. The four-year programs are characterized by the student's ever increasing responsibility to organize and implement more significant portions of his/her individual curriculum and to demonstrate personal accountability and curriculum authenticity.

The programs do not cater necessarily to the needs of the student whose goal is to become a performing/exhibiting artist, an arts teacher, or a scholar; neither does the program preclude the possibility of intensive work toward any of these goals.

The central purpose of the programs is to instill in students the desire and the ability to discover the specific problem and to marshal varied resources which lead to its resolution. The ideal "product" of the programs is a learner-in-process, rather than a finely-honed professional

artist. The choice of the latter option is the student's prerogative; the development of the former is the purpose and obligation of the BCA degree program.

The programs' Curriculum Outlines follow simple structural patterns. The incoming student is faced with two needs: to develop an in-depth understanding of an ability to utilize the problem-solving approach to education; and to become conversant with concepts and facile with skills fundamental to his/her chosen field of study. Freshman and sophomore course work is organized to meet these needs.

At the end of the second year of study the student is examined for evidence of facility in problem-solving methodology and fundamental skills sufficient to indicate potential for success in the more highly individualized junior and senior years.

In summary, the freshman and sophomore years are devoted primarily to developing the understanding and skills, as well as the self-motivation and self-discipline, requisite to successful completion of the program.

ADMISSION TO THE PROGRAM

All prospective BCA degree students must first be admitted to the University. The student will then make an appointment for an interview; in addition, the student should prepare a demonstration of the fruits of any prior training and/or experience in the arts — a portfolio, audition pieces, or whatever sort of presentation will be available before the date of the interview.

The chief purpose of the interview is to acquaint the student more fully with the unique goals and processes of the BCA degree program and to permit the faculty a limited perception of the student's ability and promise in his/her chosen field. Students who desire an educational structure in conflict with the structure of the BCA degree program and those whose promise in the field seems severely limited will be assisted in finding a program more comparable with their interests and needs.

In the event the number of applicants exceeds the number of new students the area can accommodate, the initial interview will serve as a screening process.

ADVISORY SYSTEM

The new student (freshman and transfer) will be assigned an adviser from the major area (dance, music, theatre, or visual arts). In addition to the meetings required for preregistration, the student and the adviser will meet informally throughout the semester.

Other students will be advised by the individual faculty member under whom they have registered for the individual project. Each student will meet with his/her group weekly and the adviser for the purpose of reviewing and discussing project work.

REVIEW PROCEDURES

First Year Review. The assembled area faculty, or a committee of at least three will review the work of each student having less than a 2.50 QPA at the end of his/her first year. The student will be present at the interview along with the PIPS instructor or a written recommendation from that instructor. The purpose of the review is to evaluate the potential of the student in terms of his/her goals in the major field of study. Students who show no evidence of development will be encouraged to alter their goals. No student will be withdrawn from the program at this point against his/her wishes, assuming the proper minimum grade point average is maintained.

Second Year Screening. A board of at least three faculty members or the assembled area faculty including the student's advisor, will review the student's progress near the end of his/her fourth semester. By this time the student is expected to have demonstrated, minimally:

A. an understanding of the problem-solving approach to education and a demonstration of his/her ability to make this understanding useful in the practice of his/her art. Evidence of this ability will include the successful completion of CA 201, satisfactory progress in CA 202, and a draft of the project proposal for CA 301 that indicates an understanding of the problem-solving approach to education.

B. evidence of steady growth in skills requisite to potentially successful involvement in the chosen field. The student will present finished works, work in progress, portfolios, resumes, performances, demonstrations, etc., appropriate to the field.

When the review board finds by majority vote solid evidence that the student should be allowed to continue his/her pursuit of the BCA degree, the group will recommend to the respective area faculty the student's positive standing in the department.

When the review board finds by majority vote insubstantial evidence that the student should be allowed to continue his/her pursuit of the BCA degree, that group will recommend to the respective area faculty one of the following:

1. That the student has failed to provide evidence of sufficient potential to pursue successfully his/her work toward the BCA degree and will be withdrawn from BCA degree candidacy.

2. That should the student wish to continue work toward the BCA degree that she/he should change his/her emphasis to another specified field within Creative Arts.

3. That the student may opt to repeat the fourth semester and again be reviewed at the end of that semester.

Notice of the student's standing in the department will be sent to the student in written form from the respective area. The student may, within two weeks, appeal in writing, the faculty decision. Appeal requests should be addressed to the departmental chairperson. A student may request a conference with the review board for other reasons than an appeal. Such requests should be made in writing to the student's adviser.

Third and Fourth Year Advisory Board. During the opening week of the student's junior year, she/he will choose two reviewers from the Creative Arts Faculty. These reviewers must be approved by the CA 301 adviser and should be maintained for the final two years. Their function is to review and advise on project proposals, make appropriate comments, and sign the proposal sheet prior to final approval by the adviser. The purpose for having these reviewers is to provide a consistence of familiarity with a student's development and to offer assistance in the carrying out of the project. The reviewers should have received a copy of the final project proposal, made appropriate comments, and have been informed of the previous project results before they proceed with advising students on future project proposals.

CURRICULUM OUTLINE FOR THE BACHELOR OF CREATIVE ARTS DEGREE WITH AN EMPHASIS IN ART

Freshman Year

CA 101	3	CA 102	3
CAA 170	3	CAA 171	3
CAA Area Electives	6-8	CAA Area Electives	6-8
English 101	3	English 102	3
	15-17		15-17

Sophomore Year

CA 201	2	CA 202	2
CAA 270	3	CAA 271	3
CAA Area Electives	4-6	CAA Area Electives	4-6
*Elective: Track A	3-4	*Elective: Track A	3-4
*Elective: Track B	3-4	*Elective: Track B	3-4
	15-17 (max.)		15-17 (max.)

Junior Year

CA 301	6	CA 302	6
CAA Area Electives	3-4	CAA Area Electives	3-4
*Electives (at least 3 hrs. from Track B)	6-7	*Electives (at least 3 hrs. from Track B)	6-7
	15-17		15-17

Senior Year

CA 401	9	CA 402	9
CA 403	3	CA 404	3
*Elective: Track B	3-4	*Elective: Track B	3-4
	15-16		15-16

*Electives: *Track A:* Courses outside the Creative Arts which extend the student's previous understanding of artistic perception and artistic problem solving. Suggested courses include: Math, Languages, Sciences, English 332, Philosophy 201, 205, 325, Psychology 101, 102.

Track B: Courses outside the Creative Arts which relate to the subject of the individual project or to the processes used by the student in developing the project.

N.B. Review after accumulation of 60 cr. hrs. is required.

CURRICULUM OUTLINES
BACHELOR OF CREATIVE ARTS DEGREE
WITH AN EMPHASIS IN
DANCE

Freshman Year

CA 101	3	CA 101	3
CAD 112	2	CAD 113	2
CAD 114	3	CAD 115	3
CAD 116	1	CAD 117	1
CA or CAD Electives	4-6	CA or CAD Electives	4-6
English 101	3	English 102	3
	16-18		16-18

Sophomore Year

CA 201	2	CA 202	2
CAD 210	3	CAD 211	3
CAD 212	1	CAD 213	1
CAE 214	3	CAD 215	3
CAD 116	0	CAD 117	0
CAD 218 or CAD 220	1-3	CAD 218 or CAD 221	1-3
CAD 219	2	Elective: Track A	3-4
Elective Track A	3-4	Elective: Track B	3-4
	15-18		16-20

Junior Year

CA 301	6	CA 302	6
CAD 116	0	CAD 117	0
CAD 216	1	CAD 217	1
CAD 310	3	CAD 210 or CAD 311	3
CAD 314	3	CAD 315	3
Electives (At least 3 hrs from Track B)	4-6	Electives (At least 3 hrs from Track B)	4-6
	17-19		17-19

Senior Year

CA 401	9	CA 402	9
CA 403	3	CA 404	3
CAD 116	0	CAD 117	0
Electives (At least 3 hrs) from Track B)	3-4	Electives	3
	15-16	Electives (At least 3 hrs from Track B)	3-4
			18-19

*Electives: *Track A:* Courses outside the Creative Arts which extend the student's previous understanding of artistic perception and artistic problem solving. Suggested courses include: Math, Languages, Sciences, English 332, Philosophy, 201, 205, 325, Psychology 101, 202.

Track B: Courses outside the Creative Arts which relate to the subject of the individual project or to the processes used by the student in developing the project.

N.B. Review after accumulation of 60 cr. hrs. is required.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF CREATIVE ARTS DEGREE
WITH EMPHASIS ON
MUSIC

Freshman Year

CA 101	3	CA 102	3
CAM 130	3	CAM 131	3
CAM 142	2	CAM 142	2
Eng. 101	3	Eng. 102	3
CAM Electives	2-3	CAM Electives	2-3
CAM 071 or 081	1	CAM 071 or 081	1
**CAM 141E	1	**CAM 141E	1
Recital Seminar	0	Recital Seminar	0
	15-16		15-16

Sophomore Year

CAM 201	2	CAM 202	2
CAM 230	4	CAM 231	4
CAM 242	2	CAM 242	2
**CAM 241E	1	**CAM 241E	1
CAM 071 or 081	1	CAM 071 or 081	1
CAM Elective	3	CAM Elective	3
*Elective, Track A	3-4	*Elective, Track A	3-4
Recital Seminar	0	Recital Seminar	0
	16-17		16-17

Junior Year

CA 301	6	CA 302	6
CAM Elective	3	CAM Elective	3
*Electives (at least 3 hrs. from Track B)	6-7	*Electives (at least 3 hrs. from Track B	6-7
CAM 071 or 081	1	CAM 071 or 081	1
Recital Seminar	0	Recital Seminar	0
	16-17		16-17

Senior Year

CA 401	9	CA 402	9
CA 403	3	CA 404	3
CAM 071 or 081	1	CAM 071 or 081	1
Elective: Track B	3-4	Elective: Track B	3-4
Recital Seminar	0	Recital Seminar	0
		***Senior Recital	0
	16-17		16-17

*Electives: *Track A:* Courses outside the Creative Arts which extend the student's previous understanding of artistic perception and artistic problem solving. Suggested courses include: Math, Languages, Sciences, English 332, Philosophy 201, 205, 325, Psychology 101, 202.

Track B: Courses outside the Creative Arts which relate to the individual projects or to the processes used by the student in developing the project.

**All music majors must enroll in piano until the keyboard proficiency requirement is fulfilled.

***All music majors must present either a half recital (20-30 minutes) or a full recital (40-60 minutes) depending on the student's major emphasis.

N.B. Review after accumulation of 60 cr. hrs. is required.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF CREATIVE ARTS DEGREE
WITH AN EMPHASIS IN
THEATRE

Freshman Year

CA 101	3	CA 102	3
CAT 150	3	CAT 151	3
CAT 160	1	CAT 161	1
CAT Area Electives	6	CAT Area Electives	6
English 101	3	English 102	3
	16		16

Sophomore Year

CA 201	2	CA 202	2
CAT 250	3	CAT 251	3
CAT 260	1	CAT 261	1
CAT Area Electives	3-6	CAT Area Electives	3-6
*Elective: Track A	3-4	*Elective: Track A	3-4
*Elective: Track B	3-4	*Elective: Track B	3-4
	15-18 (max.)		15-18 (max.)

Junior Year

CA 301	6	CA 302	6
CAT 360	1	CAT 361	1
CAT Area Elective	3	CAT Area Elective	3
*Electives (at least 3 hrs. from Track B)	6-7	*Electives (at least 3 hrs. from Track B)	6-7
	16-17		16-17

Senior Year

CA 401	9	CA 402	9
CA 403	3	CA 404	3
*Elective: Track B	3-4	*Elective: Track B	3-4
	15-16		15-16

*Electives: *Track A:* Courses outside the Creative Arts which extend the student's previous understanding of artistic perception and artistic problem solving. Suggested courses include: Math, Languages, Sciences, English 332, Philosophy 201, 205, 325, Psychology 101, 202.

Track B: Courses outside the Creative Arts which relate to the subject of the individual project or to the processes used by the student in developing the project.

N.B. Review after accumulation of 60 cr. hrs. is required.

COURSE DESCRIPTIONS
CREATIVE ARTS (CA)

CA 101. Perception, Interaction and Problem Solving I. (3) A basic core requirement for all Creative Arts majors. The course introduces theory and exercises in artistic perception, methods of group analysis and criticism of artistic processes and products, and a detailed study of the problem-solving framework, with special emphasis on the use of this approach in education through the arts.

CA 102. Perception, Interaction and Problem Solving II. (3) An expansion of CA 101.

CA 201. Sophomore Individual Projects I. (2) Projects designed by the student with the assistance of the adviser, resource persons and review committees. Majors only.

CA 202. Sophomore Individual Projects II. (2) Expansion of CA 201.

CA 301. Junior Individual Projects I. (6) Prerequisite: CA 202. Majors only.

CA 302. Junior Individual Projects II. (6) Prerequisite: CA 202. Majors only.

CA 305. Topics in Creative Arts. (1-6) Prerequisite: Permission of instructor. Treatment of a special topic in Creative Arts Course may be repeated for credit with change of topic.

CA 401. Senior Individual Projects I. (9) Prerequisite: CA 302. See CA 201 and 202. Majors only.

CA 402. Senior Individual Projects II. (9) Prerequisite: CA 302. Expansion of CA 401. Majors only.

CA 403. Senior Seminar I. (3) A forum for the presentation of ideas relevant to all the arts. The purpose of the course is to stimulate a consideration of the interrelatedness of all knowledge and of the shared elements of art and the creative process. Majors only.

CA 404. Senior Seminar II. (3) Expansion of CA 403. Major only.

All courses in the Creative Arts Department listed below count toward fulfilling University general degree requirements for non-BCA degree students.

ART (CAA)

CAA 170. Visual Fundamentals. (3) Introduction of two and three dimensional visual phenomena through investigation and problem solving techniques. Lecture, readings and studio. Six contact hours.

CAA 171. Design Concepts I-2D. (2) Prerequisite: CAA 170. A studio course with emphasis on the two dimensional surface and its structural possibilities (i.e., graphics, photography, painting); elements of plastic expression related to increased complexity of space and form. Majors only. Four contact hours.

CAA 172. Design Concepts II-3D. (2) Prerequisite: CAA 170. A studio course designed to explore new materials and tools as they relate to concepts of form, space and structure in three dimension. Majors only. Four contact hours.

CAA 173. Basic Image Making Systems. (3) Prerequisite: CAA 170. Drawing media including graphite, ink, brush; light sensitive electrical-mechanical and embossing techniques. Majors only. Six contact hours.

CAA 174. Figure Drawing. (3) Prerequisite: CAA 170. A course in drawing utilizing the figure as it relates to form, contour and movement; an anatomical study emphasizing the relationships of skeletal and muscle organization and other referents in the development of graphic skills and vocabulary. Six contact hours. Majors may repeat for a total of six hours credit.

CAA 175. Color Concepts. (2) Prerequisite: CAA 170. A basic course in the formal structure of color through analysis of color theory and media exploration, including a comparative study of pigment and physical light color theory. Four contact hours.

CAA 176. Concepts in Form and Structure. (3) A combination theory and methods course designed to explore natural forms as they relate to the plastic arts; developed from analysis of objects conditioned by perceptual attitudes. Six contact hours.

CAA 177. Batik. (3) Emphasis is placed upon developing an understanding of the historical rudiments of designing on fabrics, using reserve or resist techniques; the artistic and sociological implications of the revival of this ancient art/craft; the exploration of contemporary design and techniques as a medium of visual expression. Six contact hours.

CAA 178A. Introduction to Ceramics. (3) Handbuilding. A skills course introducing methods of forming clay, glaze composition and firing procedures. Six contact hours.

CAA 178B. Introduction to Ceramics — Wheel. (3) Introduction to wheel forming techniques and concepts involving skill development, glaze formation and basic high-fire techniques. Six contact hours.

CAA 179. Introduction to Fiber. (3) An introduction to the use of non-loom weaving techniques. Emphasis will be placed on the structure and the further application of the techniques. Course may include frame weaving, basketry, cardweaving, spinning and felting. May be repeated for credit. Six contact hours.

CAA 180. Metalsmithing I. (3) An introduction to basic design problems in metalsmithing, with an emphasis on the development of mechanical skills, piercing, cold joining, soldering, forming and finishing processes of non-ferrous metals. Includes a brief survey of contemporary trends in metalsmithing. Six contact hours.

CAA 181. Metalsmithing II. (3) Prerequisite: CAA 180. Fabrication of two and three dimensional forms; introduction to additional techniques in raising, forming, forging and surface embellishment. Emphasis on the exploration of design concepts. Six contact hours. May be repeated for credit.

CAA 182. Introduction Painting. (3) Prerequisite: None. Basic theory and technique of easel painting in oils from preparation of the painting support through final framing. Basic experience in drawing helpful. Six contact hours.

CAA 183. Photography I. (3) Fundamental principles, processes and aesthetics of photography. Six contact hours.

CAA 184. Photography II. (3) Prerequisite: CAA 183. Intermediate techniques in photographic printmaking; exposure, development and printing. Emphasis is given to relationship of picture aesthetic and printmaking techniques. Six credit hours, may be repeated for credit with permission of instructor.

CAA 186. Introduction to Sculpture. (3) A beginning studio course designed to introduce three dimensional forms, concepts, methods and materials. Six contact hours.

CAA 270. Innovation and Art. (3) An introductory art history course designed to explore major artistic concepts and styles as they relate to innovation and historical perspectives. Course will explore various readings in current art periodicals and journals, with slide and topical discussion in the visual arts. Three contact hours.

CAA 271. Issues in the Arts. (3) An examination, discussion and study of major issues in the arts with special emphasis on issues that face the artist in our contemporary society.

CAA 272. Comparative Art: Western/Non-Western. (3) Comparison of art theory and aesthetics in Western and non-Western culture.

CAA 273. Comparative Art: European Art Through 19th Century. (3) Comparison of art theory and aesthetics in European Art through the 19th century.

CAA 274. Comparative Art: 20th century Art, American and European. (3) Comparison of art theory and aesthetics in 20th century art, American and European.

CAA 275. Issues in Modern Painting. (3) Seminar with assigned reading, slides, exhibition visits. Two major papers or studio projects.

CAA 276. Visual Arts Education: Early and Middle Years. (3) Emphasis on the creative growth potential of children at the elementary level; perceptual development and learning objectives; past and current philosophies, psychology and methods in art education; individual studio problems involving art elements, principles and media. Four contact hours.

CAA 277. Foundations of Art Education. (3) The development of objectives for art education based on personal and historical references, philosophy and psychology. A critical examination of traditional and contemporary bases. Three contact hours.

CAA 278. Art Education Methods I. (3) Prerequisite: CAA 277. Analysis of learning theories as related to growth and development in visual arts; organization of tools, media and materials; curriculum design in planning art units and lesson plans; evaluation and motivation techniques.Four contact hours.

CAA 279. Art Education Methods II. (3) Prerequisite: CAA 277. The school structure — local, state and national economic and political considerations; the relationship of the arts and artists to contemporary society; issues and research in art education; classroom management; school exhibition. Three contact hours.

CAA 280. Intermediate Ceramics. (3) Prerequisite: CAA 178A or permission of instructor. May be repeated for credit. Emphasis on exploration and development of individual concepts and relevant technical concerns beyond CAA 178. Six contact hours.

CAA 281. Intermediate Fiber. (3) Prerequisite: CAA 179. Introduction to the loom, procedures for warping, basic technique including drafting, patterns and color problems; emphasis on technique and structure. Six contact hours.

CAA 282. Rug Weaving. (3) Prerequisite: CAA 281. A technical study including warp-faced and weft-faced rugs, pile, and flat woven surfaces. Six contact hours.

CAA 283. Tapestry. (3) Prerequisite: CAA 281. Tapestry techniques concentrating on color and design. Six contact hours.

CAA 284. Metalsmithing III. (3) Prerequisite: CAA 181. Design and execution of small three-dimensional forms in non-ferrous metals utilizing die-forming, repousse and chasing and embossing techniques. Six contact hours.

CAA 285. Casting/Jewelry. (3) Prerequisite: CAA 181. Centrifugal casting and construction for jewelry, utilizing contemporary materials in matrix formation, investment procedures, wax manipulation and finishing processes. Course includes a survey of contemporary jewelry design. Six contact hours. May be repeated for credit.

CAA 286. Intermediate Painting. (3) Prerequisite: CAA 182. Problems of composition, color, space and surface, and applied to both abstract and figurative modes of expression. May be repeated for credit. Six contact hours.

CAA 287. Photographic Medis. (3) Prerequisite: CAA 194. Alternative silver and non-silver photographic media and aesthetics. Experimental studies in the personal and imaginative use of photographic materials. Emphasis on antiquated and recent photographic materials and approaches. Six contact hours.

CAA 288. Color Photography. (3) Prerequisite: CAA 184. Introduction to photographic color theory and color aesthetics. Studio work limited to the color slide medium. Six contact hours.

CAA 289. Lithography Studio. (3) A survey of technical approaches to stone and plate lithography. Six contact hours.

CAA 290. Intaglio. (3) A survey of etching, equating, engraving, drypoint and sculptural techniques in intaglio print medium. Printing in mono-tone and multi-color approaches are required. Six contact hours.

CAA 291. Silk Screen Print Studio. (3) A survey of touch and glue, cut film, glue negative, photographic image and mixed techniques in screen printing. The student needs to know how to make a basic printing unit and understand the chemistry. Six contact hours.

CAA 292. Relief Print Studio. (3) A survey of approaches to relief media: wood, metal, plastic, linoleum and plaster. Image development is stressed along with the unique qualities of this medium. Six contact hours.

CAA 293A. Intermediate Sculpture Casting. (3) Prerequisite: CAA 186. Media involves plaster, wax clay, plastic and metal with the utilization of various mold-making and casting techniques. Six contact hours.

CAA 293B. Intermediate Sculpture — Welding/Forging. (3) Prerequisite: CAA 186. Exploration of metal construction processes through the use of various forming and joining techniques. Six contact hours.

CAA 294. Intermediate Printmaking Studio. (3) Prerequisite: CAA 289, 290, 291 (or 292). A course concerning the development of intermediate skills in any or combined graphic techniques (etching, woodcut, lithography, silk screen, collography, drawing or collage). Special emphasis on color printing and theme portfolios. May be repeated for credit. Six studio hours.

CAA 295. Aesthetic Education in the Schools. (3) Prerequisite: Permission of instructor. Focus will be upon assisting classroom and art teachers in developing techniques for dealing with aesthetic experiences and the creative process as tools for learning. Emphasis will be placed upon productive analysis of the dimensions of natural and created art forms (visual arts, dance/movement, music and drama), consideration of their qualities and making value judgments. *CEMREL Aesthetic Education* materials dealing with aesthetics of the physical world, arts elements, creative process, artists, environment and the culture will be utilized. May be repeated for credit. Three contact hours.

DANCE (CAD)

CAD 112. Ballet I. (2) Fundamentals of ballet technique, focusing on placement and alignment through floor and barre work. Four contact hours.

CAD 113. Ballet II. (2) Prerequisite: CAD 112 or consent of instructor. A continuation of CAD 112. Four contact hours.

CAD 114. Modern Dance I. (3) Modern dance as a creative art form, emphasizing the Effort/Shape concept as well as the creative approach to movement experiences designed for the elementary school teacher and beginning dance student. Course meets state educational requirements in this area.

CAD 115. Modern Dance II. (3) Prerequisite: CAD 114 or consent of instructor. A continuation of CAD 114. Six contact hours.

CAD 116. Applied Dance and Repertory Lab. (1) Consent of instructor required. Active participation in dance production and repertory as a resource for performers, teachers and choreographers, at the intermediate level. Dance majors are required to take either CAD 116 or CAD 117 each semester they are in school. The course may be repeated for credit. The class is team taught by members of the dance faculty. Three to six contact hours, dependent upon the amount of works performed.

CAD 117. Applied Dance and Repertory Lab. (1) Consent of the instructor required. Continuation of the learning experience from the previous semester with actual performances of dance works. This course is team taught and is three to six contact hours, dependent upon the amount of works performed.

CAD 210. History of Dance. (3) Prerequisite: CAD 115. Lectures concerning the historical and cultural development of dance combined with a laboratory in dance composition utilizing resources found in Louis Horst's *Modern Dance Forms*. Six contact hours.

CAD 211. History of Dance II. (3) Prerequisite: CAD 210. Lecture and laboratory course utilizing resources found in Horst's *Pre-Classic Dance Forms*. Six contact hours.

CAD 212. Ballet III. (1) Prerequisite: CAD 113. Barre and centerwork. Two contact hours.

CAD 213. Ballet IV. (1) Prerequisite: CAD 212. A continuation of CAD 212. Two contact hours.

CAD 214. Modern Dance III. (3) Prerequisite: CAD 115. Continuation of the fundamentals of dance technique through the Graham and Limon styles. Emphasis is on placement, flexibility and kinesthetic awareness in basic axial and locomotor skills. May be repeated for credit. Six contact hours.

CAD 215. Modern Dance IV. (3) Prerequisite: CAD 214. A continuation of CAD 214. May be repeated for credit. Six contact hours.

CAD 216. Ethnic Dance Forms I. (1) Identification and practice of movements and their combinations developed from folk and court dances and other cultural resources (jazz). Two contact hours.

CAD 217. Ethnic Dance Forms II. (1) Expansion of CAD 216. Two contact hours.

CAD 218A. Creative Dance Experiences I. (1) Prerequisite: CAD 115 and permission of instructor. Improvisational studies of creative movement theories, emphasizing basic dance elements such as space, time, energy, design and the use of dance as an expressive interacting learning experience. Majors only.

CAD 218B. Creative Dance Experiences II. (1) Prerequisite: CAD 218A and permission of instructor. A continuation of CAD 218A. Majors only.

CAD 219. Ideokinesoeology. (2) Prerequisite: CAD 115. Application of the Todd and Sweigard neuro-muscular educational principles of problematic areas of the body. Concentration on visual and tactile aids and on imagery for teaching dance and body re-education. Two contact hours.

CAD 220. Dance Education Methods I. Studio/Lecture. (3) One lab hour. Prerequisite: CAD 114, 115. Creative movement theories, techniques and skills are actively explored for the teaching of the elementary school child. Experiences in special and rhythmic exploration and improvisation; basic locomotor and axial movement and lesson planning. Meets state certification requirements. Three contact hours.

CAD 221. Dance Education Methods II. Studio/Lecture. (3) One lab hour. Prerequisite: CAD 114, 115. Experiences, in techniques, and skills needed for the teaching of dance in secondary schools. Dance productions; choreographing for musicals; advanced improvisation and comparative study of modern dance styles. Meets state certification requirements. Three contact hours.

CAD 310. Dance Ensemble I. (3) Prerequisite: CAD 210, 211, 218. Introduction to methods and sources of movement composition. Choreographic studies and assignments will relate to the space-time-energy dance principles. Required of those students with an emphasis in choreography.

CAD 311. Dance Ensemble II. (3) Prerequisite: CAD 310. Continuation of Choreography I with special emphasis on the development of a personal movement language. The student is free to choreograph a solo, duet or trio with a theme of his own choosing. Exceptional works will be presented to the public.

CAD 314. Modern Dance V Studio Course. (3) Prerequisite: Permission of instructor. Dance technique at the intermediate level through different and selected movement styles (Limon, Jooss). Emphasis is on growing kinesthetic awareness and locomotor skill development within the two styles. May be repeated for credit.

CAD 315. Modern Dance VI Studio Course. (3) Prerequisite: Permission of instructor. Dance technique at the intermediate level through different and selected movement styles (Graham, Wigman). Emphasis is on growing kinesthetic awareness and locomotor skill development within the two styles. May be repeated for credit.

MUSIC (CAM)

CAM 071A. Orchestra. (1) A performing ensemble; a wide range of orchestral literature is covered. May be repeated for credit. Three contact hours.

CAM 071B. Jazz Ensemble. (1) A performing ensemble; standard, original and improvised works are rehearsed and performed. May be repeated for credit. Three contact hours.

CAM 071C. Wind Ensemble. (1) A performing ensemble; a variety of musical literature is rehearsed and performed, focusing primarily on music for larger ensembles. May be repeated for credit. Three contact hours.

CAM 071D. Guitar Ensemble. (1) A performing ensemble open to majors as well as non-majors covering a variety of styles from the Renaissance to the present. Music will include original as well as transcriptions. May be repeated for credit. Three contact hours.

CAM 071E. Chamber Music Ensembles. (1 or 2) Designed for those who wish to explore chamber music literature written for their instruments in combination with other instruments and for pianists who wish to accompany solo instrumentalists and vocalists. Ensemble problems, intonation and stylistic problems will be dealt with in detail. Small chamber groups will be formed and assigned specific works. There will be two sections, one with keyboard and one without keyboard.

CAM 081A. Oratorio Choir. (1) A large choir, no audition required. Specializes in large choral works. May be repeated for credit. Three contact hours.

CAM 081B. University Chorale. (1) A small select choir; open by audition only. May be repeated for credit. Three contact hours.

CAM 081C. Opera Workshop. (2) The study of opera through the rehearsal and performance of scenes, acts and entire operas; open by audition only. May be repeated for credit. Three contact hours.

CAM 081D. Madrigal Ensemble. (1) A small mixed-voices ensemble specializing in the rehearsal and performance of music of the Renaissance; open by audition only. May be repeated for credit. Three contact hours.

CAM 129. Rudiments of Music. (3) An introductory course covering note and rhythm reading, major and minor scales, modes, intervals, key signatures and simple chords, each in relation to the piano keyboard.

CAM 130. Musical Structure and Style I. (3) A course dealing with the relationships of basic musical concepts as melody, harmony, rhythm, counterpoint, orchestration and form, as well as correlated historical information. Concepts will be integrated into four main areas of concentration; aural perception (translating sound to symbol), visual perception (translating symbol to sound), musical processes (analytical technique and competence), pertinent historical information. Three contact hours.

CAM 131. Musical Structure and Style II. (3) Prerequisite: CAM 130. A continuation of CAM 130.

CAM 132. Music Appreciation. (3) An aural approach to music dealing with the perception of various musical elements and aspects of style within a historical, philosophical and sociological perspective. Offered each semester.

CAM 133. Class Piano I. (2) Acquisition of piano keyboard skills through music reading and simple theoretical training. Will enable student to perform, sight-read and transpose simple pieces, to improvise an accompaniment and to play scales and arpeggios at a moderate tempo. Permission of instructor required.

CAM 134. Class Piano II. (2) Prerequisite: CAM 133 or consent of instructor. A continuation of CAM 133.

CAM 135. Instrumental Conducting. (3) A course concerning the elements of instrumental conducting. Skills such as baton technique, score reading and interpretation will be emphasized. An awareness of the technical possibilities of the orchestral instruments will be inculcated.

CAM 136. Choral Conducting. (3) Prerequisite: CAM 131. The analysis and interpretation of choral music and the communication of that understanding to an ensemble of singers through bodily expression and rehearsal procedures.

CAM 137. Class Voice. (2) The study of respiration, resonation, articulation and vocal coordination through the interpretation of vocal literature.

CAM 138. Guitar Class I. (2) A beginning course designed to teach the following skills: developing reading skills, reading chord tablature, exercises for strength and dexterity, exploring finger and plectrum styles and learning guitar maintenance. Primary sources for study will be contemporary popular music and music from a text. Three contact hours.

CAM 139. Guitar Class II. (2) Continuation of Guitar Class I. More in-depth reading will be required. Exploration of bar chord forms, chord substitution and scale practice. Prerequisite: Permission of instructor. Three contact hours.

CAM 141. Applied Music I. (1) The acquisition of fundamental skills, dealing with tone, range, and techniques pertaining to the specific instrument. Literature from the appropriate repertoire will be studied and performed. At the term's end, the student must perform before a jury. May be repeated for credit. One-half contact hour A-Brass Instruments; B-Guitar; C-Harp; D-Organ; E-Piano, F-Strings, G-Voice; H-Woodwinds. Permission of instructor required.

CAM 142. Applied Music II. (2) Expansion of CAM 141. May be repeated once for credit. One contact hour.

CAM 230. Musical Structure and Style III. (4) Prerequisite: CAM 131. A continuation of CAM 131. Five contact hours.

CAM 231. Musical Structure and Style IV. (4) Prerequisite: CAM 230. A continuation of CAM 230. Five contact hours.

CAM 232. Music for the Classroom Teacher (3). Problems in music for the classroom teacher. Emphasis is placed on gaining an understanding of the elements of music and on the acquisition of basic music skills. Instructional methods and materials are explored.

CAM 233. Elementary Music Methods. (3) Prerequisite: CAM 232 or permission of instructor. A study of methods and materials used in teaching music to elementary school children. Major areas of emphasis are music reading, singing, listening, playing instruments and rhythmic and creative activities.

CAM 234. Secondary Music Methods. (3) A study of methods and materials used in teaching music to junior and senior high school students. Major areas of emphasis are music reading, part-singing, listening, performing, rhythmic and creative activities, instructing general music and instrumental and choral music classes.

CAM 235. Orchestration. (3) Prerequisite: CAM 131. Exercises in scoring and arranging for instruments and/or voice.

CAM 236. Counterpoint. (3) Prerequisite: CAM 131. Exercises in counterpoint beginning with 16th century techniques.

CAM 237. Phonetics and Articulation for Singers I. (2) The study of pronunciation and articulation in vocal music in the English, Italian, German and French languages.

CAM 238. Phonetics and Articulation for Singers II. (2) Expansion of CAM 237.

CAM 241. Applied Music I. (1) Prerequisite: CAM 142. Participation in a public performance is required. See CAM 141 and CAM 142. One-half contact hour.

CAM 242. Applied Music II. (2) Prerequisite: CAM 142. Expansion of CAM 241. One contact hour.

CAM 243. Composition I. (3) Prerequisite: CAM 231 or consent of instructor. Private instruction. May be repeated for credit. One contact hour.

CAM 341. Applied Music I. (1) See CAM 141 and CAM 142. A public performance of at least 30 minutes duration is required. One-half contact hour.

CAM 342. Applied Music II. (2) Expansion of CAM 341. One contact hour.

THEATRE (CAT)

CAT 150. Introduction to Theatre I. (3) An exploration of the nature of theatre with some emphasis on the process of converting play scripts into performances. Three contact hours.

CAT 151. Introduction to Theatre II. (3) An expansion and continuation of CAT 150. Three contact hours.

CAT 152. Acting: Voice and Movement I. (3) An introduction to acting derived principally from Arthur Lessac's system of vocal and physical training. Six contact hours.

CAT 153. Acting: Voice and Movement II. (3) Prerequisite: CAT 152. A continuation of CAT 152. Six contact hours.

CAT 154. Stagecraft I. (3) A survey of construction and painting skills, with some attention given to basic elements of theatrical design. Crew hours required in addition to three contact hours.

CAT 155. Stagecraft II. (3) Expansion of CAT 154.

CAT 156. Introduction to Costuming Techniques. (3) An introduction to costume shop equipment, sewing techniques, basic patterning and construction of costume accessories.

CAT 157. Theatrical Make-Up. (3) A survey course covering the modeling of the face as well as special clown, character and animal make-up. Students must supply their own make-up kit of good quality.

CAT 160. Applied Theatre. (1 or 2) Practical production with the UNCC Theatre Ensemble. Students will be assigned a variety of responsibilities during the applied theatre courses. (CAT 160, 161, 260, 261, 360 and 361) Applied Theatre is required of those with an emphasis in theatre.

CAT 161. Applied Theatre II. (1 or 2) Expansion of CAT 160.

CAT 162. Creative Drama. (3) The study of drama and theatre as teaching tools to achieve educational ends. The use of dramatic and theatrical techniques as a means of instruction in any subject in the classroom.

CAT 250. Theatre History I. (3) A survey course studying the significant developments in theatre history from pre-classical periods to the seventeenth century. Three contact hours.

CAT 251. Theatre History II. (3) Expansion of CAT 250. From 1610 to the present. Three contact hours.

CAT 252. Acting: Inner Technique I. (3) A study of the processes of character development based largely on the theories of Stanislavsky. Six contact hours.

CAT 253. Acting: Inner Technique II. (3) Prerequisite: CAT 252. A continuation of CAT 252. Six contact hours.

CAT 254. Scene Study. (3) Prerequisite: CAT 153 or CAT 253. An actor's workshop dealing with the analysis, rehearsal and performance of scenes and one-act plays. May be repeated for credit. Six contact hours.

CAT 255. Musical Theatre Performance Techniques. (3) Prerequisite: CAT 153. An actor's workshop dealing with the specialized skills required for the performance of musical theatre. Six contact hours.

CAT 256. Scene Design I. (3) A survey of the elements of scenic design.

CAT 257. Scene Design II. (3) Prerequisite: CAT 256. A continuation of CAT 256.

CAT 258. Costume Design. (3) An introduction to costume design theory combined with a survey of costume history.

CAT 259. Puppetry. (3) A survey course in types of puppets and the history of puppetry, with emphasis on basic puppetry construction and production problems.

CAT 260. Applied Theatre I. (1 or 2) See CAT 160 and CAT 161.

CAT 261. Applied Theatre II. (1 or 2) Expansion of CAT 260.

CAT 262. Stage Lighting. (3) A basic course that covers the mechanics of electricity, light, lenses and control systems.

CAT 263. Stage Properties. (3) A survey of hand, set and dress props with an emphasis on design and production techniques.

CAT 264. Scene Painting. (3) Scene painting techniques, using primarily water base media.

CAT 265. Advanced Costume Problems. (3) Draping and drafting of costume patterns, fitting and layout techniques, masks and millinery, finishing methods.

CAT 266. Play Directing I. (3) Prerequisite: Six hours of acting and six hours of design; three hours of design may be taken concurrently. Introduction to principles and techniques of play directing, including analysis of texts, staging and communication with actors.

CAT 267. Play Directing II. (3) Prerequisite: CAT 266. A continuation of CAT 266, with emphasis on advanced analysis, coaching, communication with designers and complex staging problems.

CAT 268. Playwriting I. (3) Concentration on scene writing. Students will assist fellow writers by giving dramatic readings of their scenes and by developing improvisations based upon them. A number of plays will be analyzed.

CAT 269. Playwriting II. (3) Prerequisite: CAT 268 and permission of instructor. Special emphasis on structure and techniques leading to the development of longer works, rewriting and extending the dramatic movements. Continuation of play analysis.

CAT 360. Applied Theatre I. (1 or 2) See CAT 160, 161, 260 and 261.

CAT 361. Applied Theatre II. (1 or 2) See CAT 160, 161, 260 and 261. Expansion of CAT 360.

Department of Criminal Justice

Chairperson: Professor Dean
Associate Professor: Adams
Assistant Professors: Hirschel, Vogel
Lecturers: Heasley, Kania, McLaughlin

B.S. IN CRIMINAL JUSTICE

Students desiring the academic study of crime, delinquency and the criminal justice system, a career in the criminal justice field or preparation for graduate study may select the criminal justice curriculum leading to a Bachelor of Science degree. A major in criminal justice requires 30 semester hours of criminal justice courses, including CJ 300 — General Criminal Justice, CJ 301 — Criminal Justice Theory, and CJ 302 — Research Methods in Criminal Justice.

A minimum of a *C* average in all criminal justice coursework and at least a *C* in CJ 300, CJ 301 and CJ 302 is required. Criminal justice majors must complete a concentration in Corrections, Law Enforcement, Criminal Justice Planning and Administration, Criminal Justice Research and Evaluation or General Criminal Justice. Concentrations involve criminal justice courses and courses from other disciplines.

The General Criminal Justice concentration is available only to students holding an associate degree with a major in a criminal justice area. Those students may satisfy the requirements for the general Criminal Justice concentration by the completion of six semester hours of approved 300 or 400 level criminal justice coursework related to the major completed as part of the associate degree.

Eighteen semester hours of the 30 semester hours of required criminal justice courses must be taken as 300 and 400 level coursework.

Criminal justice majors must also complete 15 semester hours of approved related work in accounting, anthropology, economics, geography, philosophy, political science, psychology, religion or sociology, involving at least three departments. All majors are required to complete Math 101 and Math 122 or a course in social measurement. A course in social measurement may not satisfy the general degree requirements for mathematics.

CONCENTRATIONS

Corrections (12 semester hours)

CJ	437	Correctional Law
CJ	448	Victims and the Criminal Justice System
CJ	478	Community Corrections Subsystems (required)
CJ	479	Institutional Corrections Subsystems (required)
CJ	490	Practicum in Corrections
CJ	495	Directed Individual Study in Corrections
CJ	499	Topics in Corrections
SOC	362	Social Control
SW	280	The Field of Social Work
SW	381	Social Work Process
SW	382	Social Work Methods
PSY	296	Introduction to Behavior Modification
PSY	481	Psychological Counseling and Psychotherapy
HDL	463	Guidance Behavior and Growth

Concentration in Law Enforcement (12 semester hours)

CJ	448	Victims and the Criminal Justice System
CJ	488	Law Enforcement Subsystems (required)
CJ	489	Law Enforcement and Community Relations
CJ	490	Criminal Justice Practicum: Law Enforcement
CJ	495	Directed Individual Study: Law Enforcement
CJ	499	Topics in Law Enforcement
SOC	362	Social Control
PSC	315	Civil Rights and Liberties
PSC	322	Contemporary Urban Problems
HIS	384	History of Crime and the Police

Criminal Justice Planning and Administration (12 semester hours)

CJ	469	Criminal Justice Planning and Administration (required)
CJ	490	Practicum in Criminal Justice Planning and Administration
CJ	495	Directed Individual Study in Criminal Justice Planning and Administration
CJ	499	Topics in Criminal Justice Planning and Administration
PSC	300	Selected Topics in Political Science (Public Adminstration)
PSC	384	Decision Making in Public Administration
PSC	387	Urban Administration
PSC	383	Administrative Behavior
SOC	315	Bureaucracies and Organizations

Criminal Justice Research and Evaluation (12 semester hours)

CJ	459	Problems and Decisions in Criminal Justice (required)
CJ	490	Practicum in Criminal Justice Research and Evaluation
CJ	495	Directed Individual Study in Criminal Justice and Evaluation
CJ	499	Topics in Criminal Justice Research
PSC	390	Political Measurement *(or)*
SOC	356	Quantitative Sociological Analysis
PSY	301	Basic Processes in Psychological Assessment
CSC	100	Algorithmic Languages I *(or)*
CSC	101	Introduction to Computer Concepts
MAT	211	Introduction to Operations Research
MAT	221	Introduction to Probability
PSC	392	Introduction to Survey Research

General Criminal Justice

An Associate degree with a major or concentration in a Criminal Justice sub-field.

Six (6) hours of 300 and 400 level courses in the area of the Associate degree.

MASTER OF SCIENCE IN CRIMINAL JUSTICE

The Master of Science in Criminal Justice is designed to prepare individuals to apply social science concepts and analytical methods to the complex and rapidly changing system of justice and social control. The development of a broad understanding of the system and general decision-making and problem solving skills is intended to assist the student in dealing with problems in criminal justice agencies. Graduates of the program will be prepared to work professionally in such areas as law enforcement, corrections and criminal justice management.

Students may enroll in the Master of Science in Criminal Justice on either a full-time or part-time basis. Classes are scheduled in the evening to accommodate the part-time student. Full-time students may carry more than a normal course load only with permission of their advisers.

Degree Requirements. A total of 36 semester hours will be required, of which 18 semester hours must be in courses open only to graduate students. All students must complete the following four core courses: CJ 600 — The Criminal Justice System; CJ 610 — The Nature and Theory of Crime; CJ 620 — Research in Criminal Justice; and, CJ 630 — Criminal Justice and Social Control. These courses should be taken at the beginning of the student's program. In addition, students must complete a graduate level course in statistics or social measurement. Students must satisfy a concentration of 12 semester hours in Law Enforcement, Corrections or Criminal Justice Management. All concentrations must include a minimum of one graduate level course from a discipline other than Criminal Justice. Students must select the option of either passing a comprehensive written examination after completion of all course work or completing a thesis as part of the 36 hour degree requirement. At least 30 semester hours must be taken in residence. Transfer courses will be accepted at the discretion of the department and must be consistent with the student's overall program.

Program Approval and Continued Enrollment. Each student shall select a major professor during the first semester of enrollment. The major professor must be a faculty member in the Department of Criminal Justice and shall serve as chairperson of the student's Academic Committee. Each student shall select an academic committee, which will be composed of at least two and no more than three faculty members, prior to the completion of 18 semester hours of course work. The academic committee will be responsible for the approval of each student's curriculum. Each student must satisfy University requirements for continued enrollment of graduate students.

Admission to Candidacy. General academic regulations will apply to application for admission to candidacy. Any identifiable entrance deficiences must be removed by the time of application. In addition, after completion of the core requirements (CJ 600, CJ 610, CJ 620 and CJ 630) all students must successfully complete a qualifying examination administered by the student's Academic Committee.

COURSE DESCRIPTIONS

Courses for Advanced Undergraduates

CJ 300. General Criminal Justice. (3) Prerequisite: Junior standing. All components of the criminal justice system are reviewed and their interrelatedness assessed. Empirical description and tests of the various segments of the system are covered. The role of criminal justice practitioners as professionals is discussed.

CJ 301. Criminal Justice Theory. (3) Prerequisite: Junior standing. Some empirical tests of theories and consideration of theory construction are included. This course focuses upon theories of the criminal justice system as a system and gives particular attention to the systemic relationship between its component parts, inputs, conversion processes, outputs and feedbacks.

CJ 302. Research Methods in Criminal Justice. (4) Prerequisite: Junior standing. The development of research designs, data collection methods and data analysis most relevant to criminal justice are covered. Traditional criminal justice statistics are discussed. Emphasis is placed on sources of criminal justice information and the skills involved in a thorough criminal justice literature review. There is a focus on research problems of particular interest to the criminal justice system and on unique constraints operating on research within that system. Three lecture hours and one laboratory period of two hours a week.

CJ 437. Correctional Law. (3) Prerequisite: Junior standing. A consideration of the development, the substance and the operationalization of the law of corrections, involving such issues as plea bargaining and restoration of rights of the ex-offender. Specific topics

include the process of sentencing, specific sentencing alternatives, capital punishment, probation, the law relative to imprisonment and prisoners' right to probation and parole and rights of ex-offenders.

CJ 438. Juvenile Justice Subsystems. (3) Prerequisite: Junior standing. The nature, sources and types of laws concerning juveniles are considered. The focus is on legal bases of delinquency and the role of juvenile justice as a subcomponent of the larger criminal justice system. Particular attention will be given the systemic linkages of the juvenile justice system and the problems of interfacing the juvenile system with the larger criminal justice system.

CJ 439. Criminal Justice and the Law. (3) Prerequisite: Junior standing. This course examines the nature, origins and objectives of the criminal sanction as it is developed and applied by the criminal justice system. It places particular emphasis upon the roles played by statutory and procedural law in the area of law enforcement, prosecution and corrections.

CJ 448. Victims and the Criminal Justice System. (3) Prerequisite: Junior standing. A consideration of the relationship between victims of crime and the criminal justice system. Specific topics include an analysis of the characteristics of crime victims, victim reporting and non-reporting patterns, treatment of victims by the various segments of the criminal justice system, victim assistance programs and the issue of compensation and/or restitution for victims of crime.

CJ 449. Ethics and the Criminal Justice System. (3) Prerequisite: Junior standing. The course focuses on ethical issues related to the administration of justice.

CJ 459. Problems and Decisions in Criminal Justice. (3) Prerequisite: Junior standing. Significant research studies of criminal justice programs, policies and agencies are evaluated, with special attention to methodological issues and research tools of program evaluation in criminal justice settings. Emphasis is placed on the pragmatic implications of the studies and programs reviewed. The focus of the course involves criminal justice program evaluation and the implications of critical decisions for criminal justice policy.

CJ 469. Criminal Justice Planning and Administration. (3) Prerequisite: Junior standing and one planning or administration course. Individual and group studies in the dynamics of criminal justice administration and planning are covered, emphasizing the social and psychological aspects of organization and management. Policy formulation, personnel supervision and planning in a criminal justice agency are discussed. Special problems of local, state, regional and national criminal justice planning agencies are considered.

CJ 478. Community Corrections Subsystems. (3) Prerequisite: Junior standing. The structure, functions and effectiveness of community corrections are considered. Techniques in clinical criminal justice and the impact of community corrections on other elements of the criminal justice system are discussed.

CJ 479. Institutional Corrections Subsystems. (3) Prerequisite: Junior standing. The structure, functions and effectiveness of institutional corrections are considered. Techniques in clinical criminal justice and the impact of institutional corrections on other elements of the criminal justice system are discussed.

CJ 488. Law Enforcement Subsystems. (3) Prerequisite: Junior standing. The organization and operation of law enforcement and security agencies are considered. Particular attention is given to the relationship between law enforcement subsystems and other components of our system of criminal justice. The evolving role of law enforcement and its position in theories of social control are discussed.

CJ 489. Law Enforcement and Community Relations. (3) Prerequisite: Junior standing. Factors contributing to cooperation or friction between law enforcement personnel and the

community, with an emphasis on minority groups, social pressures and cultural problems, are discussed.

CJ 490. Criminal Justice Practicum. (1-6) Prerequisite: Consent of the department and the criminal justice agency, and CJ 300. Supervised exposure to a criminal justice problem of special interest to the student. May be repeated for credit up to a maximum of six total hours.

CJ 495. Directed Individual Study. (1-4) Prerequisite: Junior standing, consent of the department and one 300-level CJ course. Supervised investigations of a criminal justice problem of special interest to the student. May be repeated for credit.

CJ 499. Topics in Criminal Justice. (1-6) Prerequisite: Consent of the department. Examination of specialized criminal justice topics selected by students and faculty. May be repeated for credit.

Courses for Graduate Students Only

CJ 600. The Criminal Justice System. (3G) The major subsystems of the criminal justice system will be examined. These include law enforcement, criminal courts and correctional agencies, as well as the juvenile offender subsystem. The linkage of these subsystems to each other and to the community and society at large will be discussed.

CJ 610. The Nature and Theory of Crime. (3G) Definitions and patterns of criminal behavior will be examined. Major theoretical perspectives on crime, including historical, philosophical, individual, community-oriented and societal approaches will be considered.

CJ 620. Research in Criminal Justice. (3G) Research methodology and statistics will be considered with an emphasis on applications to criminal justice settings.

CJ 621. Program Planning and Evaluation in Criminal Justice. (3G) Applied research will be viewed as the foundation for criminal justice planning; distinctions between basic and applied research will be emphasized. Emphasis will be placed on the theoretical bases of planning in general and criminal justice planning in particular. The role of evaluation as it relates to criminal justice programs will be discussed to assist the student in predicting the success or failure of a project or program.

CJ 630. Criminal Justice and Social Control. (3G) Ethical issues of social control and criminal justice responses to such issues will be considered. The course will examine and critique the assumptions underlying systems of social control, especially as they relate to the application of criminal sanctions; such issues as drug addiction and alcoholism will be included in the examination.

CJ 640. Criminal Justice Management and Decision-Making. (3G) The application of generic principles of management and supervision to operational problems confronted by criminal justice agencies will be discussed. Particular attention will be devoted to decision-making and discretion in a criminal justice setting.

CJ 650. Law Enforcement Systems. (3G) Consideration of the elements of law enforcement agencies as subsystems of the total criminal justice system. Attention will be given to the relationship between the law enforcement subsystems and the community.

CJ 651. Police Problems and Practices. (3G) Consideration will be given the role and function of police on the operational level. Discretionary decision-making and the legal, social and institutional contexts in which it occurs are also considered. Application of interpersonal and intrapersonal theories and concepts to police problems and practices will be included.

CJ 655. Legal Issues in Law Enforcement. (3G) Advanced consideration of law applicable to the functions of the police administrator and the line police officer will be considered. Attention is given to major issues in consitutional, statutory, court-made and administrative law governing search and seizure, arrest, interrogation, use of force, jurisdiction, civil and criminal liability of administrators and officers, rights of officers and rights of suspects.

CJ 660. Prosecution and Adjudication Processes. (3G) This course will examine the functions and powers of prosecutors, defense attorneys, judges and juries and will include a discussion of plea bargaining and court procedure.

CJ 670. Corrections. (3G) The focus of this course will be on the function of correctional agencies. Principles of punishment and a historical analysis of correctional institutions and programs will be presented. Prisons, jails, probation and parole systems will be discussed.

CJ 671. Correctional Strategies: Rehabilitation and Reintegration. (3G) Efforts to change offender behavior and to facilitate the development of offender-community linkages will be discussed. Institutional classification and treatment strategies, pre-release and temporary release programs, innovative uses of probation and parole services, community residential programs and new dispositional models, e.g., sentencing to community service and restitution, will be examined.

CJ 675. Legal Issues in Corrections. (3G) Consideration of major legal issues pertaining to corrections, including sentencing, probation, restitution, prisons, parole, pardon and restoration of rights will be discussed. Emphasis will be given to legal issues often confronted by correctional administrators and probation and parole personnel.

CJ 680. Juvenile Justice Systems. (3G) The process by which specific behaviors are identified as delinquent and the responses of the juvenile justice system to such behaviors will be analyzed. Laws dealing with the juvenile justice system, the historical development of the system and the effectiveness of innovative responses to delinquency will be considered.

CJ 690. Topics in Criminal Justice. (3-6G) These courses will be developed around special issues in criminal justice. May be repeated for credit.

CJ 691. Directed Individual Study in Criminal Justice. (3G) Supervised investigation of a criminal justice problem of special interest to the student. May be repeated one time with the approval of the student's major professor or academic committee.

CJ 692. Thesis. (6G) Independent research on a significant criminal justice topic approved by the student's academic committee.

Department of English

Chairperson: Professor Mason
Professors: Burne, Carver, B. Davis, Ellis, McCall, Moose, Varnas
Professor Emeritus: Wallace
Associate Professors: Amante, Gatlin, Grey, Harper, Hedges, McGavran Newman, Petrakis, Shapiro, Watson
Assistant Professors: Frazier, Gmuca, Jacoby, McNair, Moss, Smedman
Instructor: Morgan
Lecturers: A. Davis, Gelber-Beechler, Hilligoss, Tilghman, Varn

B.A. IN ENGLISH

A major in English leading to the B.A. degree consists of 30 semester hours of course work in English beyond that used to meet the general degree requirement of six hours in English (usually 101 and 102). English 200 is required, and a maximum of six hours of additional 200-level English courses may be used towards the English major. (Prerequisites for 200-level courses are English 101 and 102, or the equivalent; 102 may be taken concurrently with a 200-level course with the consent of the department.) Requirements above the 200 level are as follows: at least three hours of English in *each* of the three group A categories (pre-1800 British literature; post-1800 British literature; and American literature) and at least three hours in *each* of the four group B categories (literary history; genre or mode; major figure; and writing or language). Lists of which courses fit the seven categories will be given to each student who enters the English major and also always will be available from English Department advisers and the English Department main office. A single course may be used to satisfy two categories only if one of the two categories comes from group A and one from group B. It is recommended that students take a 200-level English course (for majors, preferably English 200) prior to enrolling in a 300 or 400-level literature course.

The English major also must take six semester hours of related work beyond the 30 hours of English required for the major per se and in addition to that for the humanities general degree requirement. These must be in 300 or 400-level courses in American Studies, Creative Arts, Foreign Languages, History, Religious Studies, Afro-American and African Studies, Philosophy, English, and/or Humanities. (Upper division courses from other academic areas than those listed may be used to satisfy this requirement, but only with approval of the chairman of the Department of English.)

All of the above requirements (in both paragraphs) apply to the regular English major and to those English majors seeking teacher certification. English majors in the secondary or intermediate certification programs are required to take six hours in English language, linguistics and/or composition, beyond 101-102, and should consult with the College of Human Development and Learning regarding other courses required for certification. (For intermediate certification as an English major a student must include English 303 or 304.) Any English course used for certification purposes also can be used towards all other requirements for the English major, as appropriate.

(Students seeking early childhood (K-3) certification must major in Human Development and Learning. However, the English Department offers a Helping Specialty, or academic concentration, in language and literature study which HDL majors may elect; and these students can also double major in HDL and English. Additional information about these options is available from the English Department and the College of Human Development and Learning.)

Internships in the community and the University are available for upper-level English majors. (See Humanities 450 and consult the English Department for further information.)

Reminder: English majors who are seeking certification at any teaching level must meet specific requirements of the Department of English before they are allowed to do student

teaching and before they are approved for certification by the department. Such students should consult the department early in their careers for these requirements. They include: at least a 2.5 average for English courses taken at UNCC (above the 100 level) and at least a 2.5 average for all courses taken at UNCC; and at least 24 hours of work in English above the 100 level (for student teaching.)

Note: Whenever a student is admitted to the English Department as a major, that status is conditional upon: making at least a *C* average for the first nine hours of English taken at UNCC; and upon making at least a *C* average on the papers written for those courses considered together. If the student has the *C* average on courses but not on papers, one may take further work in composition and may qualify fully as an English major if the composition instructor approves. If the above standards are met, the department will admit the student to full status as an English major.

If the average on English courses falls below 2.0 at any time or composition falls below average, there should be a conference between the student and the adviser about continuing as an English major.

English Department Class Attendance Policy. Students are expected to attend all scheduled English Department classes. Specific attendance policy for each section is left to the teacher.

Awards. The department gives several undergraduate awards each spring (usually to senior English majors): the Margaret Bryan Award for excellence in scholarship; the James A. Anderson Award for outstanding achievement in the study of English language and literature; the LeGette Blythe Creative Writing Award; the Aristidis Katopodis Award for academic excellence in the study of English; and the Robert M. Wallace Award for excellence in the study of English.

MASTER OF ARTS IN ENGLISH

The Master of Arts in English degree program is designed to accommodate students seeking a Master of Arts degree with or without graduate certification in teaching. The program is flexible enough that it can serve the particular needs of the individual student, whether used for general education and enhanced knowledge and understanding, for personal pleasure, for professional advancement, or for further preparation for teaching at the primary or secondary level, or two-year or four-year college level. The student may pursue a broad spectrum of literature, writing, and language; or the student may concentrate in a particular field or area, such as linguistics, writing, American literature, British literature, modern literature, etc.

Program Approval. Approval of the program of each student and advice regarding progress toward the degree will be the responsibility of an adviser appointed by the Department of English at the time of the student's admission.

Course Requirements

1. The program requires a minimum of 30 semester hours of acceptable graduate credit, 15 of which must be for English courses open only to graduate students. Of the 30 hours of graduate credit, 27 hours (six of which may be applied to a thesis if that option is taken) must be for English courses. Three hours of electives may be taken either in English or in related work on the graduate level (e.g., in History, Human Development and Learning, etc.). No more than six hours of English 690 (Directed Reading) may be applied to the degree without written permission of the Chairman of the Department. [Those students who already have an "A" teacher's certificate and who wish to obtain a "G" certificate at the completion of the degree must have six hours of graduate credit in Human Development and Learning, three hours of which can be part of the minimum 30 hours for the M.A. in English (for a total of 33 hours). Graduate courses in English can be applied toward subject matter requirements for an "A" certificate, but courses so used cannot also be applied toward subject matter requirements for a "G" certificate.]

2. The English courses offered for the degree must include the following:
   a) at least three hours in language, linguistics, rhetoric or writing
   b) at least three hours in American literature
   c) at least three hours in British literature before 1800
   d) at least three hours in British literature after 1800 (English 625 may be used for this).
3. While a thesis is not required for the degree, those students wishing to write one may do so (see the course description for English 696).
4. Courses beyond 30 semester hours of graduate credit may be required to remove deficiencies or to satisfy requirements for graduate certification, or may be recommended to develop areas of need, to pursue particular interests or to gain needed experience.
5. Up to six semester hours of appropriate graduate credit may be accepted for transfer from another accredited institution.

Examination. Each student must satisfactorily complete a comprehensive examination (including both written and oral segments) for the degree. The written examination may not be attempted sooner than three weeks after all English courses for the degree are completed.

Awards. The Ethel Katopodis Award is presented annually to a graduate student for academic excellence in the study of English.

Loan Fund. The English Graduate Student Loan Fund was established in 1979 by graduates of the M.A. program in English in honor of teaching excellence in graduate studies by faculty of the department. It is available to students in the M.A. in English program. For further information, contact the English Department.

COURSE DESCRIPTIONS

Courses for Undergraduates

ENG 100. English As A Foreign Language. (3) Limited to students whose native language is not English who may need additional preparation for their regular academic work, including composition. Does not count toward an English major. (One should not register for ENG 100 before taking the English Department's placement test for persons whose primary language is not Enlgish.) NOTE: Anyone completing ENG 100 who wishes to use it as part of the six-hour general degree requirement in English will also have to take ENG 101 or 102, as decided by the English Department on the basis of proficiency demonstrated at the end of ENG 100.

ENG 101-102. English Composition. (3+3) Introductory readings in varieties of literature and intensive practice in critical and expository writing. English 101 is prerequisite to 102.

ENG 200. Approaches to Literature. (3) Prerequisites: ENG 101 and 102. Introductory study and application of major critical approaches to literature, such as historical, psychological, mythological and formalistic. **Required of English majors** and highly recommended as the first post-freshman-level course for the English major.

ENG 201. Masterpieces of British Literature I. (3) Prerequisites: ENG 101 and 102. An introduction to British Literature written before 1800, the course also provides backgrounds in the society and culture of the Middle Ages, the Renaissance and the Age of Reason.

ENG 202. Masterpieces of British Literature II. (3) Prerequisites: ENG 101 and 102. An introduction to masterpieces of British Literature written since 1800, the course also provides backgrounds in the society and culture of the Romantic, Victorian and Modern periods.

ENG 203. Masterpieces of Modern Fiction. (3) Prerequisites: ENG 101 and 102. Readings in selected novels and short stories written since 1850.

ENG 204. Major American Writers. (3) Prerequisites: ENG 101 and 102. Introductory readings in six to eight authors, approximately half from the nineteenth century and half from the twentieth century, both poetry and prose.

ENG 206. Film Criticism. (4) Prerequisites: ENG 101 and 102. Introduction to film as an art form. Emphasis will be on critical theory and on critical analysis of the form and the content of different kinds of films — e.g., the narrative film, the silent film, the documentary film, etc. — drawn from the international cinema. Students will apply critical theory to the analysis of professionally made films and will have the option of making their own short films.

ENG 208. Introduction to Drama. (3) Prerequisites: ENG 101 and 102. Representative plays of the western world from the classical period to the modern period to introduce students to drama as literature, with consideration of staging, conventions of the theatre, types of drama and dramatic theory.

ENG 211. Masterpieces of World Literature I. (3) Prerequisites: ENG 101 and 102. Readings in Greek, Latin, and Eastern poetry and prose, in translation into English. The genesis of literature in myth, in Eastern religion, and in the Bible, and the development of Greek and Roman literature.

ENG 212. Masterpieces of World Literature II. (3) Prerequisites: ENG 101 and 102. Readings in Medieval, Renaissance and Modern European literature, in translation into English. Social and literary changes in the Reformation and Renaissance, the beginnings of new modes of thought in the Age of Enlightenment, and other scientific, literary, religious, philosophical and social changes up to the modern period.

ENG 214. Topics in Writing. (1-3) Prerequisites: ENG 101 and 102. Offers instruction and practice in special types of writing — including such focuses as technical writing or business writing — which are not included in other writing courses. In addition, some sections may be designed for students who need strengthening of composition skills, or may offer instruction in various aspects of effective writing. English 214 **may not be used** toward the requirements for the English major or for the Humanities part of the General Degree Requirements. The **maximum hours of credit** allowed any student are six for English 214, 215, or 214 and 215 together.

ENG 215. Topics in Writing. (1-3) Prerequisites: ENG 101 and 102. Offers instruction and practice in special types of writing — including such focuses as journalism or writing for publication (exclusive of poetry, drama and fiction) — which are not included in other writing courses. In addition, some sections may offer instruction in various aspects of effective writing. **Not more than** three hours of 215 may be used toward the requirements for the English major (and that not toward fulfillment of the 12 hours of English language or composition required for certification in English). **A maximum of** three hours of English 215 may be used for the Humanities part of the General Degree Requirements. The **maximum hours of credit** allowed for any student are six for English 215, 214, or 215 and 214 together.

ENG 250. Topics in English. (3) Prerequisites: ENG 101 and 102. Designed to offer topics of general interest not included in other courses. May be repeated for additional credit with the approval of the English Department. Does not count towards the English major.

Courses for Undergraduates and Graduates as Designated

NOTE: IT IS RECOMMENDED THAT STUDENTS TAKE A 200-LEVEL COURSE PRIOR TO ENROLLING IN A 300 OR 400-LEVEL LITERATURE COURSE, UNLESS OTHERWISE SPECIFIED. ENG 101 AND 102 ARE PREREQUISITES FOR ALL ENGLISH COURSES FOLLOWING THIS STATEMENT.

ENG 301. Greek and Roman Drama In Translation. (3) (3G) A study of selected plays of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Terence and Seneca with emphasis on dramaturgy and the development of the Greek and Roman theater.

ENG 303. Children's Literature. (3) Critical and historical study of children's literature, including picture books, poetry, myth, fable, folk tale, fantasy and realistic fiction. Central to the course is development of critical principles for assessing the literary merit of children's books. Other possible emphases: the creative process; archetypes and values in the works studied; images of childhood; children's responses to literature; and issues in children's book selection.*

ENG 304. Literature for Adolescents. (3) Introduction to literature for adolescents. Emphases are: (1) critical analysis and aesthetic judgment of literature; (2) study of representative examples from all major genres (poetry, fiction and drama) as well as various sub-genres (such as biography, science fiction, fantasy and contemporary realistic juvenile fiction) which address the cognitive, emotional and psychological needs of junior high and high school students. Students will practice applying these approaches to adolescent literature and will employ these concepts in critically selecting, evaluating and judging books for adolescents.*

ENG 305. Expository Writing. (3) (3G) Writing of essays, criticism and various forms of exposition.

ENG 306. Introductory Creative Writing. (3) (3G) Open to students of at least sophomore standing who have satisfied the requirements of ENG 101 and 102. Writing of fiction, poetry or drama.

ENG 311. Chaucer. (3) (3G) The poetry of Geoffrey Chaucer, including *The Canterbury Tales* and *Troilus and Criseyde*.

ENG 313. Milton. (3) The major poems and selections from the minor works.

ENG 316. Shakespeare's Early Plays. (3) A study of 10 representative plays from the comedies, histories and tragedies written 1590-1600.

ENG 317. Shakespeare's Late Plays. (3) A study of 10 representative plays from the period 1600-1611, including the late tragedies and tragi-comedies.

ENG 321. The Earlier Seventeenth Century. (3) (3G) Major writers from Bacon and Donne to the Restoration.

ENG 323. Wit and Sensibility: 18th-Century British Literature. (3) Poetry and prose in the golden age of satire, with emphasis on Dryden, Pope and Swift. Early Romantic trends in the poetry of Young, Grey, Collins.

ENG 325. The Romantic Era, 1785-1832. (3) The development of the Romantic movement with emphasis on the works of Wordsworth, Coleridge and the other major poets.

ENG 326. The Victorian Era to 1870. (3) Readings in British literature of the middle of the nineteenth century, reflecting such cultural developments as the rise of industrialism and technology, England's global Empire, the rapidly changing nature of society, the religious crisis, and the beginnings of artistic and literary revolt against the establishment.

*At least one of these courses is required for English majors seeking intermediate teacher certification.

ENG 327. British Literature from 1870 to World War I. (3) Readings emphasizing such cultural and literary developments as realism and the impact of science, art for art's sake, problems of religious faith and of sexuality, moral and political issues relating to colonialism, British imperialism, and new techniques in art and literature.

ENG 328. British Literature Since World War I. (3) Readings reflecting developments such as the decline of Britain as a world power, the intellectual disillusionment following World War I, the impact of psychological and social theory, and literary innovation and experimentation.

ENG 331. History of the English Language. (3) (3G) Origins and development of the English language, both spoken and written, from its earliest forms to contemporary usage.

ENG 332. Introduction to Contemporary English. (3) Introduction to the study of the sound systems, vocabulary, idiom, word origin, and structure of contemporary English language, including principles of language which can be applied to the study of other languages and dialects.

ENG 333. Linguistics and Language Learning. (3) (3G) Readings in, discussion of, and application of linguistically oriented theories of language acquisition, directed towards gaining an understanding of language-learning processes and stages.

ENG 341. American Literature of the Romantic Period, 1820-1870. (3) Important writers and ideas of the period of American romanticism, from Irving through Whitman, including such authors as Poe, Emerson, Thoreau, Hawthorne, Melville.

ENG 342. American Literature of the Realistic and Naturalistic Periods, 1870-1920. (3) Important writers and ideas of American literature from Whitman through the period of World War I, including such authors as Dickinson, Twain, Howells, James, Crane, Dreiser, Frost.

ENG 343. Modern American Literature, 1920 to Present. (3) Important writers and ideas of modern American literature, including such authors as Faulkner, Eliot, Hemingway, Cummings.

ENG 344. The American Novel of the Nineteenth Century. (3) Major novelists and traditions from the beginnings of the American novel through the rise of realism, including such novelists as Hawthorne, Melville, Twain, Howells, James.

ENG 345. The American Novel of the Twentieth Century. (3) Major novelists and traditions from the emergence of naturalism to the present, including such novelists as Crane, Dreiser, Hemingway, Faulkner.

ENG 347. Early Black American Literature. (3) A survey of significant writings by black Americans before the Harlem Renaissance.

ENG 348. Twentieth Century Black American Literature: Prose. (3) Intensive study of selected black American twentieth century writers of fiction and nonfiction, beginning with the Harlem Renaissance.

ENG 349. Twentieth Century Black American Literature: Poetry and Drama. (3) Intensive study of selected black American twentieth century writers of poetry and drama, beginning with the Harlem Renaissance and including the Black Arts Movement.

ENG 350. Topics in English. (3) May be repeated for additional credit with approval of the English Department. This course is designed to offer special topics not included in other courses.

ENG 351. Literary Criticism Through Arnold. (3) (3G) The major schools and critics.

ENG 352. Independent Study. (1 to 3 semester hours credit). May be repeated for additional credit with approval of the English Department. Prerequisite: Consent of the depart-

ment. Individual investigations and appropriate exposition of the results. (Unless special permission is granted by the department Chairman, no more than six hours of 352 may apply toward the English major.)

ENG 355. American Folklore. (3) Introduction to the nature of folklore, with an emphasis on literary folklore, including myths, legends, ballads, songs, tall tales, hero tales and ghost stories. (Does not satisfy the American literature requirement for English majors.)

ENG 400. English Composition Practicum. (1-3) (1G-3G) With permission of the English Department may be repeated once for credit. Prerequisite: Consent of the instructor. Through supervised tutorial experience and seminars, this course introduces the student to current developments concerning composition and to a variety of methods for teaching English composition. This course is highly recommended for those planning to teach or those currently engaged in teaching.

ENG 401. Modern Literary Criticism. (3) (3G) Theories of the modern schools of criticism.

ENG 405. Writing Workshop. (3) (3G) Prerequisite: ENG 306 or the equivalent. May be repeated once for credit with the consent of the English Department.

ENG 406. Advanced Expository Writing. (3) (3G) Prerequisite: ENG 305. May be repeated once for credit with the permission of the English Department.

ENG 412. Medieval British Literature. (3) (3G) Representative works (excluding those of Chaucer) written in Britain during the Middle Ages, especially the epic and romance, mainly studied as reflections of medieval man's relationship to God, society and other men. An introduction to the earliest British literature as it evolved from pagan folklore under the influence of myth, fantasy, courtly convention, the new religion, foreign invasion, and transformations in language and culture. Most of the works studied in this course will be in translation into modern English.

ENG 413. British Prose and Poetry of the Sixteenth Century. (3) (3G) Major works of the Renaissance "Golden Age," including Sidney, Marlowe, Spenser and Shakespeare (excluding drama). Included are satire, the pastoral romance in prose, and the many new poetic forms that continue to the present day, such as the sonnet and blank verse.

ENG 421. The 18th-Century British Novel: Man, Woman, Manners and Morals. (3) (3G) The novel as narrative form and as mirror of the individual in society. Emphasis on fiction by Defoe, Richardson, Fielding, Stern, and Austen, with further readings in the novel of manners and the gothic romance.

ENG 422. The Victorian Novel. (3) (3G) Readings in British fiction during the triumph of the novel in the nineteenth century, emphasizing major developments in realism, romance and naturalism.

ENG 423. The Modern British Novel. (3) (3G) Representative British novels which embody the cultural and literary developments of the twentieth century: the impact of two world wars, the influence of important psychological and economic factors of modern life and their relationships to new techniques in art and literature.

ENG 424. Modern Irish Literature. (3) (3G) Readings in Irish literature since 1885, with consideration of the mythology, folklore, and social history of Ireland as they are expressed in poetry, drama and fiction.

ENG 431. British Drama to 1600, Excluding Shakespeare. (3) (3G) A survey of the development of British drama to 1600, with representative plays from the Mystery-Miracle Cycles, the Morality Plays, and Tudor drama, including Lyly, Kyd, Marlowe, Peele, Greene and Dekker.

ENG 432. British Drama From 1600 to 1642, Excluding Shakespeare. (3) (3G) A survey of Jacobean and Caroline drama, including plays by Jonson, Beaumont and Fletcher, Webster, Middleton, Shirley and Ford.

ENG 433. British Drama of Wit and Intrigue, 1660-1780. (3) (3G) The famous bawdy comedy of manners and the heroic drama of the Restoration, followed by the sentimental comedy and satiric burlesque of the 18th century.

ENG 441. Colonial and Early American Literature. (3) (3G) Origins of American literature, from Colonial times to Washington Irving, including such authors as Edwards, Taylor, Franklin, Crevecoeur, Freneau, Brown.

ENG 445. Literature of the American South. (3) (3G) Selected works of Southern writers which reflect literary and cultural concerns from Colonial times to the present, including such authors as Poe, the early humorists, local color writers, Chopin, Faulkner, Warren, O'Connor, Welty.

ENG 450. Contemporary Poetry. (3) (3G) Poetry in English (including translations) since 1940.

ENG 451. Modern Drama. (3) (3G) Representative Continental, British and American plays, Shaw to the present.

ENG 452. Modern European Literature. (3) (3G) Selected modern European authors, translated into English, whose works have been of special interest to readers and writers of British and American literature.

ENG 453. Contemporary Fiction. (3) (3G) Selected present-day fiction, with an emphasis upon works from outside the United States and Britain. Works not originally in English will be studied in translation into English.

ENG 455. Pan-African Literature. (3) (3G) Introduction to significant Pan-African literature, emphasizing the oral tradition, selected works of major authors in the Caribbean and Africa, and the relationships of these traditions to American, British and other literary traditions. Works not originally written in English will be studied in translation into English.

ENG 461. Modern English Grammar. (3) (3G) Prerequisite: ENG 331, 332, 333 or permission of the instructor. A study of the structure of contemporary English, with an emphasis on descriptive approaches.

ENG 465. Language and Culture. (3) (3G) Prerequisite: ENG 331 or 332. Readings in and discussion and application of the interrelationships between language and culture, including basic introduction to contemporary American dialects and to social contexts of language.

ENG 470. Approaches to Teaching English. (1-3) (1-3G) This course presents various approaches to the teaching of English, including recent theories and research related to literary study. Designed primarily for teaching in grades 7-12.

Courses for Graduate Students Only

ENG 601. Bibliography and Methodology. (3G) Introduction to the scope, aims, materials and methods of literary scholarship, including criticism.

ENG 602. Interpretations of Literature. (3G) Demonstrations and practice in the various types of literary analysis, utilizing multi-media techniques where appropriate.

ENG 603. The Worlds of Juvenile Literature. (3G) Poetry, folk literature, modern fantasy, realism, and illustrations in books for young children and adolescents. An analysis of the literary qualities which distinguish the classic from the ephemeral through such critical approaches as the historical, the sociological, the psychological and the archetypal.

ENG 611. Shakespeare's Comedies and Histories. (3G) Source materials, textual problems and stage conventions in selected comedies and history plays illustrating Shakespeare's dramaturgy.

ENG 612. Shakespeare's Tragedies. (3G) Source materials, textual problems and stage conventions of selected tragedies, chosen primarily from the period of the great tragedies, illustrating Shakespeare's dramaturgy.

ENG 613. Milton. (3G) The complete poetry and selections from the prose.

ENG 623. The Augustan Age, 1660-1785. (3G) Close reading of Dryden, Pope, Swift and Johnson and a consideration of other literary figures and trends, in the light of intellectual and historical currents.

ENG 625. The Romantic Era, 1785-1832. (3G) Development of the Romantic movement, with emphasis on the works of Wordsworth, Coleridge and other major poets.

ENG 626. The Victorian Era, 1832-1900. (3G) Emphasis on Tennyson, Robert Browning, Arnold, Carlyle, Ruskin and Newman.

ENG 641. American Romanticism. (3G) Major writers of the 1830's, 40's, and 50's, including Hawthorne, Melville, Whitman, Emerson, Thoreau and the Transcendental movement.

ENG 642. American Realism and Naturalism. (3G) Major writers of the two movements before and after the end of the nineteenth century, including Twain, Howells, James, Crane, Dreiser and Norris.

ENG 643. American Modernism. (3G) Six to eight writers of the period since World War I, both prose and poetry.

ENG 647. Perspectives in Afro-American Literature. (3G) A survey of Afro-American literature, emphasizing the major authors, those relevant historical and social factors, and those specific literary movements which have influenced the development of Afro-American literature.

ENG 661. Introduction to Linguistics. (3G) Introduction to linguistics, its techniques and objectives; descriptive and historical approaches; language families; language and culture.

ENG 662. Topics in Rhetoric. (3G) Examination of and/or research concerning selected issues in rhetorical theory or pedagogy. (May be repeated for credit with English Department approval.)

ENG 680. Seminar in British Literature. (3G).

ENG 685. Seminar in American Literature. (3G).

ENG 690. Directed Reading. (3G).

ENG 695. Internship in College Teaching. (3G) Teaching of one section in the UNCC English Department under supervision of the English staff. Students will be accepted for internship only near the end of the degree program and upon approval by the department for the internship. Students will be assigned to teach selected basic courses, and also will participate in periodic conferences and seminars.

ENG 696. Thesis. (6G) Appropriate research and written exposition of that research, which may or may not be outgrowth of work done in previous courses. If the thesis is the outgrowth of previous coursework, considerable additional research and exposition must be done beyond that previously undertaken. The proposed thesis work, as well as the final product, will be approved by a committee of three faculty apropriate to the topic, appointed by the Chairman of the department after consultation with the student, on the basis of a written proposal from the student. It is recommended that thesis work not be undertaken until near the end of progress toward the degree. The thesis title is to be shown on the student's final transcript. (A statement of recommendations and requirements for form and procedure is available in the English Department office.)

Department of Foreign Languages

Chairperson: Associate Professor Gleaves
Professors: Gabriel, Saman
Professors Emeritus: Bush, Macy, Slechta, Turner
Associate Professors: Cernyak, Gleaves, Hopper, Merrill, Miller, Reimer, Rose
Associate Professor Emeritus: Hoyle
Assistant Professors: McLeod, Park, Vance

Programs in each of the several foreign languages offered are designed to give a student competence in four skills — understanding, speaking, reading and writing the given language, to acquaint him with the culture and civilization of the country or countries where that language is spoken, especially their literature, and to give him some understanding of the people who speak it. Major programs include advanced linguistic analysis of sound systems and structure and are designed to prepare students for certification by the North Carolina State Department of Public instruction or graduate work in the major field. Courses above the 202 level are normally taught in the foreign language.

Placement. The Department of Foreign Languages will recommend the placement of a student in a class of a level commensurate with his demonstrated competence at the time of enrollment considered together with his prior language training or experience. Placement exams are given at the beginning of each semester.

Honors in Modern Languages. The honors program in foreign languages is open both to majors and non-majors who have demonstrated sufficient ability and interest to be capable of a guided independent study outside the restrictions of regular course work. Reading for honors in a foreign language may begin as early as the second semester of a first-year course (102), providing the student has been enrolled in the University for at least one semester. Honors students who attain the language proficiency required for the 202 level may choose to read either in the literature or in the civilization of the target culture. Whenever feasible, arrangements are made for non-majors to read in the area of their special interest in cooperation with the department of their major.

Students are invited to enter honors work by recommendation of a member of the department to the Honors Committee for the language concerned. Once accepted for honors work within the department, a student must submit any proposal for a special honors project at least eight weeks prior to the semester in which the work is to be done. A student may drop honors work at any time without penalty. (See *University Honors Program).* However, he will not be permitted to reenter the program until the following semester and, in any case, not without review and approval by the Honors Committee.

Laboratory. All foreign language courses at the 100 and 200 level meet for three class hours and one to two hours of laboratory work per week. Whenever warranted, laboratory work may be assigned by the instructor in other courses.

Summer Scholarships. Scholarships for summer study and working positions abroad are available to French, German and Spanish students at UNCC. Applicants generally do not have to be language majors to be eligible but they must have completed at least two years of study of the language they propose to use abroad. For detailed information see scholarship coordinators.

SUGGESTED CURRICULUM LEADING TO A BACHELOR OF ARTS DEGREE IN A FOREIGN LANGUAGE

Freshman Year

English 101	3	English 102	3
History 101	3	Mathematics/Elective	3
Foreign Language 201	4	History 102	3
Elective	3	Foreign Language 202	4
		Elective	3
	13		16

Sophomore Year

Foreign Language 301	3	Foreign Language 302	3
Literature Elective	3	Foreign Language 3xx	3
Science with Lab	4	Science with Lab	4
Social Science Elective	6	Math or Logic Elective	3
		Elective	3
	16		16

Junior Year

Foreign Language 3xx	3	Foreign Language 4xx	3
Foreign Language 331	3	Literature Elective	3
Creative Arts Elective	3	Philosophy or Comparative Religions	3
Social Science Elective	3	Elective	3
Elective	3	Elective	3
	15		15

Senior Year

Foreign Language 4xx	3	Foreign Language 4xx	3
Foreign Language 4xx	3	Creative Arts Elective	3
Foreign Language 309	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		15

SUGGESTED CURRICULUM LEADING TO A BACHELOR OF ARTS DEGREE IN A FOREIGN LANGUAGE WITH CERTIFICATION IN SECONDARY SCHOOL TEACHING

Freshman Year

English 101	3	English 102	3
History 101	3	Mathematics 101 (103)	3
Foreign Language 201	4	History 102	3
Elective	6	Foreign Language 202	4
		Elective	3
	16		16

Sophomore Year

English 201	3	English 202 (203, 204)	3
Foreign Language 301	3	Foreign Language 302	3
Education 201	3	Foreign Language 3xx	3
Social Science (1)	3	Mathematics or Logic	3
A Physical Science	4	A Biological Science	4
	16		16

Junior Year

Foreign Language 3xx	3	Foreign Language 4xx	3
Foreign Language 331	3	Foreign Language 4xx	3
Psychology 201	4	Creative Arts Elective	3
Social Science (1)	3	Psychology 202	3
Health Education 101	1	Foreign Language 300	3
Elective	3		
	17		15

Senior Year

Foreign Language 4xx	3	Education 304	3
Philosophy or Comparative Religions	3	Psychology 302	3
Foreign Language 309	3	Education 402	3
Foreign Language 4xx	3	Education 451	6
Creative Arts Elective	3		
Physical Education 101	1		
	16		15

COURSE DESCRIPTIONS
FOREIGN LANGUAGES

Languages offered under these courses are designated by alphabetical listing: A — Greek; B — Hebrew; C — Italian; D — Portuguese, and E — Other.

FL 101. Elementary Foreign Language. (3-4)* Prerequisite: Permission of the department. Fundamentals of grammar and phonetics, reading, writing and conversation.

FL 102. Elementary Foreign Language. (3-4) Prerequisite: FL 101 or permission of the department. Continuation of FL 101.

FL 201. Intermediate Foreign Language. (3-4) Prerequisite: FL 102 or permission of the department. Review grammar, conversation, composition and readings based on culture and civilization.

FL 202. Intermediate Foreign Language. (3-4) Prerequisite: FL 201 or permission of the department. Review grammar, conversation, composition and readings based on students' needs.

FL 300. Methods of Teaching A Foreign Language. (2) Prerequisite: Junior standing or permission of department. An investigation into current trends and practices of foreign language teaching with special emphasis on practical applications. Readings, discussions, micro-teaching and observation of classroom situations at all levels. Required of all students seeking certification in the teaching of a foreign language.

FL 350. Topics in Language, Literature and Culture. (3) Studies in a selected field of interest. May be repeated for credit.

Concentration in Translating

Successful completion of FL 371, 372, 471 and 472 entitles the student to a Certificate in Translating. The Certificate is not equivalent to a major in a foreign language but represents a skill developed at the level of a baccalaureate degree. The Certificate in Translating may be taken in conjunction with a major in any field.
NOTE: All courses in the Certificate sequence involve translating into English from the source language.

FL 371. Introduction to Translating. (3) Prerequisite: Completion through 202 level of one language other than English, or equivalent. History and present practice of translating; differences between translating and interpreting; psychological differences among speakers of different languages; patterns of language development; non-verbal language; technical and scholarly discourse versus layman's language; theory and limitations of machine translating; demonstrations of interpreting; career options, professional associations and their functions; sources of employment information.

FL 372. Elementary Translating. (3) Prerequisites: Native fluency in English and completion through 202 level of source language, or equivalent. FL 371 is required for students taking the certificate sequence, and is strongly recommended for any others who wish to take FL 372. Comparative analysis of translated texts; questions of restructuring texts and adding or subtracting material; style/audience relationship; simple translations from source language to English; terminology searches; sight translation.

*The number of hours credit for each course (3-4) is determined by the necessity or availability of a lab program.

FL 471. Intermediate Translation. (3) Prerequisite: Successful completion of FL 372. Critical analysis of different kinds of English texts and of texts translated into English; translations for specific audiences; précis writing; translation of business, semi-technical, popular-scientific and literary texts; development of working dictionaries in field of specialization; investigation of employment opportunities.

FL 472. Advanced Translation. (3) Prerequisite: Successful completion of FL 471. Study of professional journals in the field of translation; specific problems of source/target language equivalents; expansion of working dictionaries; oral reports on work in progress; translation of substantial text(s) in field of specialization. (Texts may be scientific, technical, commercial, scholarly or literary, depending on field of specialization, but in all cases will be works that have not been adequately translated before.)

FRENCH

The French major offers three options:

A. The French major leading to the B.A. degree consists of FRE 201, 202, 301, 302, 303, 304, 309, 331 and at least 12 hours on the 400 level, including FRE 491. Related work is to be approved by the department and is indicated in the Suggested Curriculum leading to a Bachelor of Arts Degree in a Foreign Language.

B. The French major leading to a B.A. degree with secondary school teaching includes the same courses as A and in addition all courses required for certification as indicated in the Suggested Curriculum Leading to a Bachelor of Arts Degree in a Foreign Language, with Certification in Secondary School Teaching. This program is worked out in collaboration with both the Department of Foreign Languages and the College of Human Development and Learning.

A or B is required for recommendation either to teaching or to graduate school.

C. The French major leading to a B.A. in French for the non-professional consists of FRE 201, 202, 301, 302, 303, 304, 309, 331 and six hours of French at the 400 level. Candidates for a degree with certification in elementary school teaching may take option C, plus FL 300.

COURSE DESCRIPTIONS
FRENCH

Courses for Undergraduates

FRE 101. Elementary French. (3) Fundamentals of the French language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by FRE 101L.

FRE 101L. Elementary French Practicum. (1) Drill, practice, practical application of structures and concepts learned in class. Two hours of Practicum per week. Accompanies FRE 101. May not be taken apart from FRE 101 without permission of the department.

FRE 102. Elementary French. (3) Prerequisite: FRE 101 and 101L, or equivalent. Fundamentals of the French language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by FRE 102L.

FRE 102L. Elementary French Practicum. (1) Drill, practice, practical application of structures and concepts learned in class. Two hours of Practicum per week. Accompanies FRE 102. May not be taken apart from FRE 102 without permission of the department.

FRE 201. Intermediate French. (4) Prerequisite: FRE 102 or permission of the department. Review grammar, with composition and conversation based upon readings on French culture and civilization. Three class hours and two hours of laboratory work per week.

FRE 202. Intermediate French. (4) Prerequisite: FRE 201 or permission of the department. Review grammar, composition and conversation, based upon readings in French prose and poetry. Three class hours and two hours of laboratory work per week.

FRE 209. French Civilization. (3) Conducted in English. No knowledge of French required. Open to majors or non-majors for elective credit. A study of the French people, past and present, with emphasis on cross-cultural contrasts in attitudes and values.

Courses for Advanced Undergraduates (and Graduates as Designated)

FRE 301. Advanced French Grammar, Composition and Conversation I. (3) Prerequisite: FRE 202 or permission of the department. For prospective teachers of French and students who want intensive oral and written work in the language. Oral reports and conversation on topics prepared from such sources as journals and newspaper articles.

FRE 302. Advanced French Grammar, Composition and Conversation II. (3) Prerequisite: FRE 202 or permission of the department. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression.

FRE 303. Introduction to the Study of French Literature. (3) Prerequisites: FRE 202 or permission of the department. Study of major works of French literature with emphasis on in-depth analysis of individual authors, works and related movements. Readings, discussions, presentations and *explications de texte.*

FRE 304. The Dynamics of French Literature. (3) Prerequisites: FRE 301 or FRE 302 or permission of the department. A study of the sources and the evolution of literary forms, themes and symbols and the interrelationships of literature, history and society as perceived in French literature. Lectures, oral reports and discussions.

FRE 309. French Civilization. (3) Prerequisite: FRE 301, 302, 303 or permission of the department. A study of the French people, past and present. Special attention to cross-cultural contrasts in attitudes and values. Conducted in French.

FRE 331. French Phonetics. (3) (3G) Prerequisite: FRE 202 or permission of the department. Study of the sounds of the French language, their production and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. (May be repeated for credit with permission of the department.)

FRE 350. Selected Topics in French. (3) Prerequisite: Junior standing and consent of the department. Credit may be repeated.

FRE 360. French Literature in Translation. (3) Prerequisite: None. Study of selected works of major French writers translated into English. Available to French majors for elective credit only. May be repeated for credit with different content. Course conducted in English.

FRE 401. French Literature of the Twentieth Century. (3) Prerequisites: FRE 303 and 304 or permission of the department. Concentration on the principal authors and movements of the contemporary period.

FRE 403. French Literature of the Nineteenth Century. (3) (3G) Prerequisites: FRE 303 and 304 or permission of the department. Concentration on the sources of nineteenth-century literary ideas, the principal literary movements and the principal poets, dramatists, novelists and critics.

FRE 405. The Age of Enlightenment. (3) (3G) Prerequisite: FRE 303 or permission of the department. Major emphasis on "les philosophes," especially Montesquieu, Voltaire, Diderot and Rousseau.

FRE 408. The Seventeenth Century. (3) (3G) Prerequisite: FRE 303 or permission of the department. Study of Pre-Classical and Classical trends in seventeenth-century French literature. Emphasis on the work of major writers of the period: Descartes, Pascal, Corneille, Molière, Racine, La Fontaine, Boileau and Mme de Lafayette. Outside readings and reports.

FRE 411. French-African Literature. (3) Prerequisite: FRE 302 or permission of the department. Study of sub-Saharan French-African literature from the colonial period through the contemporary period. Course conducted in French.

FRE 417. French Literature of the Middle Ages. (3) Prerequisite: FRE 303 or permission of the instructor. Study of French literature from the *Chanson de Roland* to François Villon. Knowledge of the Old French Language is not a prerequisite but may be acquired by special arrangement with the department. Outside readings and reports.

FRE 418. French Literature of the Renaissance. (3) Prerequisite: FRE 303 or permission of the instructor. Study of French literature from 1480 to 1610. The influence of Humanism, Italianism and the Religious Wars on French literature. Emphasis on Rabelais, Ronsard and Montaigne. Outside readings and reports.

FRE 450. Special Topics in French. (3) (3G) Prerequisite: two 300 courses or permission of the instructor. Treatment of a special subject group or figure in French language, literature or culture. May be repeated for credit with change of topic.

FRE 491. Senior Colloquium. (3) Prerequisite: Senior standing and permission of the department. Special problems in the major field. Collateral readings and term papers. FRE 491 is required of all French majors.

GERMAN

A major in German consists of German 201, 202, 301 or 302, 309, 311, 403 or 404, 410, 420 plus six additional hours on the 300- or 400-level, or a total of 32 hours. In addition, 15 hours of related work, to be approved by the department chairman, will be required. Candidates for teacher certification must also take GER 331, making a total of 35 hours of work in the Foreign Languages Department required.

COURSE DESCRIPTIONS
GERMAN

GER 101. Elementary German. (3) Fundamentals of the German language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by GER 101L.

GER 101L. Elementary German Practicum. (1) Drill, practice, practical application of structures and concepts learned in class. Two hours of Practicum per week. Accompanies GER 101. May not be taken apart from GER 101 without permission of the department.

GER 102. Elementary German. (3) Prerequisite: GER 101 and 101L, or equivalent. Fundamentals of the German language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by GER 102L.

GER 102L. Elementary German Practicum. (1) Drill, practice, practical application of structures and concepts learned in class. Two hours of Practicum per week. Accompanies GER 102. May not be taken apart from GER 102 without permission of the department.

GER 201. Intermediate German. (4) Prerequisite: GER 102 or permission of the department. Review grammar, composition and conversation, based upon readings on the culture and civilizations of German-speaking countries. Three class hours and two hours of laboratory work per week.

GER 202. Intermediate German. (4) Prerequisite: GER 201 or permission of the department. Continuation of GER 201. Review grammar, composition and conversation, based upon readings on the culture and civilization of German-speaking countries. Three class hours and two hours of laboratory work per week. Students who wish to continue with advanced offerings in German are advised to select GER 202.

NOTE: In GER 201 and 202, the student selects either the audio-visual laboratory (individual and group work with recorded and filmed materials supplementing classroom studies) or the "drama" laboratory (participation in the preparation and performance of a German drama).

GER 203. Technical German. (4) Prerequisite: GER 201. The student reads and prepares English translations of German publications in his major field of concentration. Not open to German majors without permission of the department. Three class hours and two hours of laboratory per week.

GER 209. Introduction to German Life and Thought. (3) Conducted in English. No knowledge of German required. Open to majors or non-majors for elective credit. A study of German life and thought, past and present.

GER 301. Advanced German Grammar, Composition and Conversation I. (3) Prerequisite: GER 202 or permission of the department. For prospective teachers of German and students who want intensive oral and written work in the language. Three class hours per week and laboratory work as assigned by instructor.

GER 302. Advanced German Grammar and Composition II. (3) Prerequisite: GER 202 or permission of the department. Intensive review of German grammar. Discussion of prepared topics drawn from newspapers and periodicals. Three class hours per week and laboratory work as assigned by instructor.

GER 309. German Civilization. (3) Prerequisite: GER 202 or permission of the department. Composition and conversation based on readings in the culture, civilization, art and literature of German speaking countries.

GER 311. Topics in German Studies. (1-3) Prerequisite: GER 202 or permission of the department. Book reports and discussions on collateral readings. Changing topic: a) Short prose fiction, b) The radio play, c) Folk music and folk literature, d) Methods in the study of literature, e) Structure of Modern Standard German, f) Twentieth century Germany as reflected in literature, and other topics. May be repeated for major credit as topic changes.

GER 331. German Phonetics. (3) Prerequisite: GER 202 or permission of the department. Study of the sounds of the German language, their production and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. Three class hours and two hours of laboratory work per week. Transcription exercises and student recordings.

GER 360. German Literature in Translation. (3) For non-majors. Prerequisite: Sophomore standing; knowledge of German not required. May be taken for elective credit by German majors. Reading and discussions of selected works of German literature of topical interest to the student. May be repeated as topic changes.

Courses for Advanced Undergraduates and Graduates

GER 403. Survey of German Literature I. (3) (3G) Prerequisites: two 300-level courses (not 360) or permission of the department. General introduction to German literature from the Middle Ages to the Classical Period. Book reports and class discussion on collateral readings.

GER 404. Survey of German Literature II. (3) (3G) Prerequisite: two 300-level courses (not 360) or permission of the department. German literature since Classicism. Book reports and discussions on collateral readings.

GER 410. Periods in the History of German Literature (3) (3G) (a) Medieval literature (b) Classicism (c) Romanticism (d) Contemporary literature. Prerequisite: two 300-level courses (not 360) or permission of the department. Study of the major writers and works in a given period. Readings, lectures and reports. May be repeated for major credit as topic changes.

GER 420. The Chief Genres in German Literature. (3) (3G) (a) The novel (b) The drama (c) Lyric poetry. Prerequisite: two 300-level courses (not 360) or permission of the department. An analysis of a major genre and its development within German literary history. Readings, lectures and reports. May be repeated for major credit as topic changes.

GER 450. Special Topics in German. (1-2-3) (1-2-3G) Prerequisite: One 300-level course or permission of the instructor. Treatment of a special group or figure in German literature, specialized topic in German culture or advanced work in German language. May be repeated for credit with change of topic.

COURSE DESCRIPTIONS
RUSSIAN

RUS 101. Elementary Russian. (3) Fundamentals of the Russian language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by RUS 101L.

RUS 101L. Elementary Russian Practicum. (1) Drill, practice, practical application of structures and concepts learned in class. Two hours of Practicum per week. Accompanies RUS 101. May not be taken apart from RUS 101 without permission of the department.

RUS 201. Intermediate Russian. (4) Prerequisite: RUS 102 or permission of the department. Review grammar, with conversation and composition based upon readings in Russian culture and civilization. Three class hours and two hours of laboratory work per week.

RUS 202. Intermediate Russian. (4) Prerequisite: RUS 201 or permission of the department. Continuation of grammar, conversation and composition skills, based on readings in Russian literature. Three class hours and two hours of laboratory work per week.

RUS 495. Seminar in Slavic Linguistics. (2) Prerequisite: RUS 102 or the permission of the department. Study of morphology semantics, phonology and general grammar of Russian and other Slavic languages — Bulgarian, Czech, Polish, Serbo-Croatian, Slovak and Ukranian. Class meetings once a week for two hours.

SPANISH

A major in Spanish leading to the B.A. degree consists of Spanish 201, 202, 301, 302, 303, 304, 309 or 310, and 12 hours of Spanish courses on the 400 level. Spanish 312 may be substituted for 304.

COURSE DESCRIPTIONS
SPANISH

SPA 101. Elementary Spanish. (3) Fundamentals of the Spanish Language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by SPA 101L.

SPA 101L. Elementary Spanish Practicum. (1) Drill, practice, practical application of structures and concepts learned in class. Two hours of Practicum per week. Accompanies SPA 101. May not be taken apart from SPA 101 without permission of the department.

SPA 102. Elementary Spanish. (3) Prerequisite: SPA 101 and 101L, or equivalent. Fundamentals of the Spanish language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by SPA 102L.

SPA 102L. Elementary Spanish Practicum. (1) Drill, practice, practical application of structures and concepts learned in class. Two hours of Practicum per week. Accompanies SPA 102. May not be taken apart from SPA 102 without permission of the department.

SPA 201. Intermediate Spanish. (4) Prerequisite: SPA 102 or permission of department. Reinforcement and expansion of skill mastery developed in elementary courses on basis of grammar review and conversation. Three hours of class and two hours of laboratory per week.

SPA 202. Intermediate Spanish. (4) Prerequisite: SPA 201 or permission of department. Extensive practice in oral and written control of the language on basis of readings from Spanish or Spanish American literature. Three hours of class and two hours of laboratory per week.

SPA 209. Literature of the Hispanic World in Translation. (3) Prerequisite: None. Studies of Spanish or Spanish American literature in translation. Not available to Spanish majors for credit toward major but may be taken for elective credit. May be repeated for credit. Course conducted in English. Applies as Humanities elective.

SPA 301. Advanced Grammar and Composition. (3) Prerequisite: SPA 202 or permission of the department. For prospective teachers of Spanish and students who want intensive oral and written work in the language. Both written and oral composition. Reports on collateral reading. Two hours of class and two hours laboratory per week. Course conducted in Spanish.

SPA 302. Advanced Conversation and Composition. (3) Prerequisite: SPA 202 or permission of the department. Intensive oral and written work in the language. Both written and oral composition. Reports on collateral readings. Two hours of class and two hours laboratory per week. Course conducted in Spanish.

SPA 303. Introduction to Spanish Literature. (3) Prerequisite: SPA 202 or permission of department. Reading and analysis of representative master works of Spanish literature from its origins through the 20th century. Course conducted in Spanish.

SPA 304. Introduction to Spanish Literature. (3) Prerequisite: SPA 202 or permission of department. Continuation of SPA 303 with emphasis on literature of the nineteenth and twentieth centuries. Course conducted in Spanish.

SPA 309. Spanish Civilization and Culture. (3) Prerequisite: SPA 202 or permission of department. An overview of the cultural heritage of peninsular Spain. Course conducted in Spanish.

SPA 310. Spanish American Civilization and Culture. (3) Prerequisite: SPA 202 or permission of department. An introduction to the cultural heritage of the Spanish American countries. Course conducted in Spanish.

SPA 312. Introduction to Spanish American Literature. (3) Prerequisite: SPA 202 or permission of the department. Introduction to studies in Spanish American literature from the sixteenth century through the contemporary period. Course conducted in Spanish.

SPA 331. Spanish Phonetics. (3) Prerequisite: SPA 202 or permission of department. Detailed analysis of description and production of Spanish sounds. Practical exercises to include phonetic transcription and recordings. Two hours of class and two hours of laboratory a week.

Courses for Advanced Undergraduates (and Graduates as Designated)

SPA 401. Nineteenth-Century Spanish Literature. (3) (3G) Prerequisite: Two 300-level courses or permission of department. Survey of peninsular literature from Costumbrismo through the Generation of 1898. Lectures, discussions and reports on basis of extensive collateral reading. Course conducted in Spanish.

SPA 402. Twentieth-Century Spanish Literature. (3) (3G) Prerequisite: Two 200-level courses or permission of department. Treatment of major literary developments from the Generation of 1898 to present day. Lectures, discussions and reports on the basis of extensive collateral readings. Course conducted in Spanish.

SPA 405. The Golden Age of Spanish Literature I. (3) (3G) Prerequisite: Two 300-level courses or permission of department. *El Lazarillo* through *El Criticón*. Lectures, discussions and reports on the basis of extensive collateral readings. Course conducted in Spanish.

SPA 406. The Golden Age of Spanish Literature II. (3) (3G) Prerequisite: Two 300-level courses or permission of department. Study of works of the leading dramatists of the period. Lectures, discussions and reports on the basis of extensive collateral readings. Course conducted in Spanish.

SPA 410. Studies in Spanish American Poetry. (3) (3G) Prerequisite: Two 300-level courses or permission of the department. Studies of nineteenth and twentieth-century Spanish American poetry. Course conducted in Spanish.

SPA 411. Studies in Spanish American Prose Fiction. (3) (3G) Prerequisite: Two 300-level courses or permission of the department. Studies of nineteenth and twentieth-century Spanish American prose fiction. Course conducted in Spanish.

SPA 412. Studies in Spanish American Theater. (3) (3G) Prerequisite: Two 300-level courses or permission of the department. Studies of twentieth-century Spanish American theater. Course conducted in Spanish.

SPA 413. Don Quijote. (3) (3G) Prerequisite: Two 300-level Spanish courses or permission of the department. Study of Cervantes masterpiece, which is considered by many critics to be the basis of the modern Western novel. Course conducted in Spanish.

SPA 450. Selected Readings in Spanish. (1-2-3) (1-2-3G) Course may be taken for either one, two or three hours of credit. Prerequisite: Two 300-level courses or permission of the department. Consideration of a predetermined author or literary movement. Course conducted in Spanish. (May be repeated for credit.)

Department of Geography and Earth Sciences

Chairperson: Professor Stuart
Professors: Clay, Nunnally, Pyle, Schul, Stuart
Associate Professors: Ingalls, Lord, Walcott
Assistant Professors: Frizado, Furuseth, Ives, Tally
Lecturers. W. Martin, Simpson, Smith

The department offers the B.A. degree for two majors, one in Geography, the other in Earth Sciences.

B.A. IN GEOGRAPHY

A major in Geography leading to the B.A. degree consists of 28 hours of Geography and Earth sciences and will include Geography 102, 105, 202 and 203 and Earth Sciences 101. Except for required courses, all work offered for the major must be in courses numbered 300 or above. Majors are expected to take additional work in computer science, economics, history, political science, sociology and statistics or other related areas.

B.A. IN EARTH SCIENCES

The Earth Sciences major is designed to offer student flexibility in curriculum development beyond basic required courses of Earth Sciences 101, 102 and 340. Selection of other courses in the major and in related areas is to be determined through student-adviser consultation and is based primarily on the student's interest.

The Earth Sciences program is divided into four general topical areas:

(1) Atmospheric and Hydrospheric Studies
(2) Surface Materials and Processes Studies
(3) Geologic Studies
(4) Teacher Certification in Earth Sciences

Suggested courses for each topical area have been outlined, and in the first three areas a student may further select course options that stress either an applied or an environmental approach. A more detailed development of course offerings in the above topical areas is available through the department faculty.

A major in Earth Sciences leading to the *B.A. Degree* consists of a minimum of 35 semester hours, including Earth Sciences 101, 102 and 340. The remaining 23 hours are to be selected from other Earth Sciences courses and an approved list of related Geography courses. Students are encouraged to take related courses in mathematics/statistics, natural sciences, engineering and planning, depending on the chosen topical area.

Those Earth Sciences majors planning on professional employment (pre-graduate school) are advised to incorporate the following courses into their program:

	Semester Hours
(1) MAT 103 and 120, *or* MAT 141 and 142	6 (8)
(2) GGY 203 or MAT 122, *and* CSC 100 or 102	6
(3) CHE 101/101L and CHE 102/102L*	8
(4) Two semesters of Physics *or* Biology; *or* one semester of Physics and one semester of Biology	8
	28

(5) Optional: A 4 to 8 credit hour, summer field course following the junior year is encouraged.

*PHY 101 and 102 for persons in the Atmospheric/Hydrospheric concentration.

MASTER OF ARTS IN GEOGRAPHY

The M.A. in Geography offers concentration in three areas of study: (1) Location analysis; (2) Urban-Regional Analysis and Planning; and (3) Environmental Analysis. The Location Analysis concentration focuses primarily upon a study of the location of commercial and public facilities. Students interested in retail location, industrial development, market area analysis and transportation should pursue course work in this concentration. Those students interested in planning or a broader perspective of the urban and regional environment should take course work in the Urban-Regional Analysis and Planning concentration. The Environmental Analysis concentration is aimed toward the training of the student in the identification and solution of problems of the physical environment which have important consequences for our society.

Course Requirements. The M.A. in Geography requires a minimum of 36 semester hours of graduate credit. GGY 615, 617, 618 and 690-691 will be required of all students. Up to 12 hours may be taken in related work. In addition, a minimum of nine semester hours in other 600-level courses in geography and earth sciences is required.

Six semester hours of course work may be accepted for transfer from other accredited institutions. Course credit may be earned by examination as well. Transfer credits will not be accepted automatically. In any case, transfer credits, related work or credits earned through examination may not together exceed a total of 12 of the minimum 36 hours required.

Continued Enrollment. The progress of each student will be reviewed every semester by the departmental Graduate Advisory Committee and by the student's adviser. Continued enrollment will require a favorable recommendation by the Committee and the adviser. Prompt removal of any entrance deficiencies will be a major criterion for continued enrollment.

Internships. Most students will work as interns in a public or private agency. This work will take place toward the end of a student's program. The departmental internship director will assist students and faculty advisers in placing the student in an internship position that best relates to the interests of the student. The purpose of the internship is to expose the student to the problems and activities of the community and for the student to have the opportunity to apply geographic theory, technique and knowledge to real life practices. The student intern will work on a specific project under the supervision of both the sponsor and a faculty adviser. The results of the internship project will form the basis for the Individual Research Project report. The internship is not required and will be arranged only when it is possible to find a sponsoring company or agency that is willing to support research in the area of the student's interest. If a suitable internship cannot be arranged, the student will be expected to execute an independent research project at the level of a thesis in order to satisfy the 690-691 course requirement.

Final Examinations. Each student must pass a comprehensive examination over both the discipline generally and in defense of the individual research report, as appropriate. The examination may be both written and oral.

COURSE DESCRIPTIONS

GEOGRAPHY

Courses for Undergraduates

GGY 102. World Regional Geography. (3) A world regional study which emphasizes the distinctly human responses of man to various geographic situations throughout the world. The nature and development of cultural regions will be studied.

GGY 105. The Location of Human Activity. (3) An examination of factors which account for the locational characteristics of economic and other human activities. The locational decision-making process is examined as a means of understanding human spatial behavior.

GGY 202. Elementary Cartography. (3) A study of the design and construction of maps and diagrams. Emphasis is on the effective communication of statistical data by means of graphical symbolization. One lecture hour and two two-hour laboratory periods per week.

GGY 203. Introduction to Geographic Research. (3) An examination of research design and resources in geographic study including emphasis on spatial models and other quantitative tools applicable to geographic research.

Courses for Advanced Undergraduates and Graduates

GGY 301. Geography of Latin America. (3) (3G) A regional study of the basic human and physical differences from place to place which affect economic, social and political conditions of the Latin American countries.

GGY 302. Geography of Polar Regions. (3) (3G) A study of the Arctic and Antarctic regions with particular emphasis on the history of exploration, the physical environment and political significance.

GGY 303. Geography of Anglo-America. (3) (3G) The geographic structure of the United States and Canada with emphasis on both the physical environment and the patterns of human activities.

GGY 304. The South. (3) (3G) A study of the culture, environment, population and economy of the southeastern U.S. with emphasis on current trends and their future implications.

GGY 305. Geography of Europe. (3) (3G) A regional study of geographic conditions and their relationship to economic, social and political problems of Europe.

GGY 308. Geography of East Asia. (3) (3G) A regional study emphasizing the relationships that exist between the physical environment and the cultural patterns of geographic regions of China, Korea, Japan and the nations of Southeast Asia.

GGY 309. Geography of South and Southwest Asia. (3) (3G) A regional study emphasizing the relationships that exist between the physical environment and the cultural patterns in geographic regions of the Indian subcontinent and the Arabian peninsula.

GGY 311. Political Geography. (3) (3G) A study of the concepts of political geography developed through topical studies of political phenomena as related to geographical features. Contemporary problems in international affairs will be considered.

GGY 312. Population Geography. (3) (3G) A study of spatial variations in the size, composition, distribution and growth of population. The causes and implications of geographic differences in fertility, mortality and especially migration are discussed.

GGY 313. Manufacturing Geography. (3) (3G) A study of factors relating to the nature, locations and development of manufacturing industries. Emphasis upon classification of manufacturers, principal areas of manufacturing and the role of manufacturing in regional development.

GGY 316. Retail Location. (3) (3G) A study of the spatial attributes of retailing and related activities. Emphasis upon location patterns, store location research, trade area delineation and consumer spatial behavior.

GGY 317. The Geography of Transportation Systems. (3) (3G) The study of those geographical and human factors which affect the movement of goods and people from place to place. Emphasis will be placed on transportation routes and networks, commodity flow patterns and the locational implications of freight rates.

GGY 318. Agricultural Location. (3) (3G) A study of the functional and spatial attributes of agricultural and related activities. Emphasis upon economic factors which affect location patterns.

GGY 319. Geography of Industrial Activity. (3) (3G) The analytical study of the principles that affect the geographic distribution of manufacturing activity. Emphasis will be on theory, model building and the practical application of theory to geographic research. Also covered will be the role of industrial activity in regional development and planning. Although not required, students should generally plan to take GGY 313 first.

GGY 320. The City and Its Region. (3) (3G) A study of the regional system of cities in terms of their size, spacing, historical evolution, functional relationships and future prospects.

GGY 321. Internal Structure of the City. (3) (3G) An integrative study of the spatial structure of cities with emphasis on land use patterns and models, transportation systems, residential concentrations, commercial activities and manufacturing zones.

GGY 323. Behavioral Geography. (3) (3G) A study of various information processing and decision making models that affect locational choices. The primary emphasis is on the application of these models to the analysis of environmental preferences, human behavior in natural hazard zones, urban social and economic locational behavior and land use planning.

GGY 324. World Food Problems. (3) (3G) A study of the magnitude, consequences, major causes and potential solutions to the world's food problems.

GGY 331. Air Photo Interpretation. (3) (3G) Procedures and practice in the recognition, measurement and analysis of features on aerial photographs and satellite imagery. One hour of lecture and two two-hour labs per week.

GGY 332. Advanced Cartography. (3) (3G) Prerequisite: GGY 202. Preparation of maps, figures and charts at a professional level of competence. Techniques to be emphasized include scribing and various related photographic processes in addition to conventional pen and ink methods. Two laboratories of three hours each week.

GGY 340. Land Use Planning. (3) (3G) An examination of land use planning, with emphasis on basic planning processes, implementation techniques and strategies, and issues confronting contemporary urban and rural planning.

GGY 341. Resource Planning. (3) (3G) A study of the resources of the world, especially as they pertain to population, their use and misuse and present conservational practices as they relate to planning for future resource adequacy.

GGY 342. The Region and Planning. (3) (3G) Prerequisite: GGY 340 or consent of instructor. The regional concept and its application to urban and regional planning. Emphasis to be upon the techniques used in regional analysis.

GGY 343. Environmental Planning. (3) (3G) An examination of the interaction and relationships between natural and manmade elements of the environment. Emphasis will be placed on planning concepts and methodologies used in contemporary environmental planning.

GGY 350. Advanced Geographic Analysis. (3) (3G) Prerequisite: GGY 203 or consent of instructor. An examination of advanced analytical methods in geography. The course will include multi-variate analysis and complex spatial models. Course will include computer usage.

GGY 402. Selected Topics in Geography. (3) (3G) Prerequisite: Consent of instructor. An intensive study of topics in geography. Topics will be offered from such areas as urban, manufacturing, tertiary activity, transportation, primary activity and political geography. Topics will vary from semester to semester. May be repeated for credit.

GGY 450. Individual Study in Geography. (1-4) (1-4G) Permission of the department must be obtained and credit hours established in advance. May be repeated for credit. Tutorial study of special research problems.

GGY 480. Internship in Geography. (3-6) (3-6G) Prerequisite: Consent of the department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The department will attempt to place the selected students in cooperating community organizations to complete specified research or work-related tasks which are based on a contractual arrangement between the student and community organization. The student can receive three to six hours credit depending on the nature and extent of the internship assignment.

Courses for Graduate Students Only

GGY 601. Topics in Economic Geography. (3G) Major topics in the location of economic activity examined generally and in a specific local occurrence. May be repeated for credit.

GGY 602. Topics in Urban Geography. (3G) Major topics in the form and structure of urban areas examined generally and in a specific local occurrence. May be repeated for credit.

GGY 603. Topics in Political Geography. (3G) Major topics in spatial aspects of political systems with special emphasis on urban and regional spatial patterns examined generally and in a specific local occurrence. May be repeated for credit.

GGY 604. Topics in Regional Geography. (3G) Intensive examination of major spatial questions in a given region. May be repeated for credit.

GGY 605. Topics in Environmental Studies. (3G) Major topics concerning the physical environment with emphasis on pollution problems in urban areas examined generally and in a specific local occurrence. May be repeated for credit.

GGY 606. Topics in Physical Geography. (3G) Major topics in physical geography examined generally and in specific local occurrence. May be repeated for credit.

GGY 615. Quantitative Analysis in Geography. (3G) A study of statistical and other quantitative techniques commonly used in geographic research. A knowledge of elementary statistics is assumed.

GGY 616. Cartographic Preparation and Analysis. (3G) Cartographic design and analysis of qualitative and quantitative data. Emphasis to be on preparation of maps, figures and charts. Techniques including scribing and various photographic processes. Two three-hour labs each week.

GGY 617. Research Design Fundamentals. (3G) Prerequisite: Consent of the instructor. An introduction to scientific research and problem solving. Topics include problem identification, bibliographic search, data sources and collection, techniques selection and preparation of reports and proposals. The student will be required to formulate a substantive research problem.

GGY 618. Analysis and Presentation of Research Data. (3G) Prerequisite: GGY 617. The student is required to complete a research project. In addition, topics such as research critiques, preparation and presentation of research reports, and the development of geographic thought are considered.

GGY 650. Seminar in Geography. (3G) Study of the current trends in geographic thought and research methods, *Pass/No credit* grading.

GGY 651. Topics in Geographic Techniques. (3G) Detailed study of cartographic, remote sensing, quantitative techniques or field techniques. May be repeated for credit.

GGY 680. Directed Problems in Geography. (3G) Individual research into geographic topics. May be repeated one time.

GGY 690-691. Individual Research Project. (3G, 3G) Individual research report based on directed study of a topic of geographic significance. *Pass/No Credit* grading.

EARTH SCIENCES

Courses for Undergraduates

ES 101. Earth Science-Geography. (4) A study of the basic geographical principles and processes in earth science; the earth — its position and motions; the grid system; weather; climate; the waters; soils; and vegetation. Three lecture hours and one period in the audio-visual-tutorial lab every week.

ES 102. Earth Science-Geology. (4) A study of the basic geological principles and processes in earth science; the earth as a planet; treatment of physical processes shaping the earth; earth materials and landforms. Three lecture hours and one laboratory period of two hours a week.

Courses for Advanced Undergraduates and Graduates

ES 300. The Violent Earth. (3) (3G) A study of past and present catastrophic natural phenomena which literally change the face of the earth and man's adjustment to these events. Topics include: continental drift, ice ages, volcanos, earthquakes, climate change, hurricanes, tornadoes and floods.

ES 301. The Environmental Dilemma. (3) (3G) An examination of the nature, causes and responses to major environmental problems.

ES 310. Stratigraphy and Earth History. (3) (3G) Prerequisite: ES 102. Changes in the earth's environments and life forms through geologic time as determined by a study of stratigraphic principles and their application to fossil organisms and sedimentary rocks. Three lecture hours per week, occasional lab and field work.

ES 330. Biogeography. (3) (3G) An introduction to the biosphere with focus on structure, processes and patterns. Three hours per week with occasional field work integrated into course.

ES 335. Soil Science. (3) (3G) Prerequisite: ES 102. Corequisite: CHE 101 or consent of the instructor. Presentation and application of knowledge of soil forming processes to the

management and use of soils. Two hours of lecture, three hours of lab per week with occasional field trip.

ES 340. Field Methods in the Earth Sciences. (4) (4G) Prerequisites: ES 101 and ES 102 or consent of instructor. Introduction to field techniques used in studies of geology, topography, hydrology, soil, microclimate and vegetation. Writing skills related to the presentation of scientific data are emphasized. Three hours of lecture, two hours of lab per week. Earth Science majors should take ES 340 as as soon as possible after completion of ES 101 and ES 102.

ES 341. Natural Environments of North America. (3) (3G) A study of the physiographic regions of the United States, the genesis and pattern of the major landforms included within each, their distinctive characteristics and their cartographic interpretation.

ES 342. Meteorology. (3) (3G) An introduction to atmospheric phenomena, weather producing processes, weather forecasting and weather effects upon man's activities.

ES 343. Weather Analysis Laboratory. (1) (1G) Pre- or corequisite: ES 342 or consent of instructor. An introduction to weather observation and techniques of weather forecasting. One two-hour lab per week.

ES 345. Microclimatology. (3) (3G) Prerequisite: ES 101, introductory physics, or consent of instructor. An examination of the fundamental energy exchanges which determine local-scale climates and manmade modifications of these environments. Topics include micrometeorological factors associated with building and urban climates, human comfort, plant energy and moisture environments, and air pollution dispersion.

ES 348. Applied Climatology. (3) (3G) Prerequisites: ES 101 and GGY 203 or Statistics, or consent of instructor. Methods of acquiring and analyzing climatic data in various types of applied problems. Emphasis on methods to assess and reduce the economic impacts of weather effects upon man's activities.

ES 350. Minerals and Rocks. (4) (4G) Pre- or corequisite: ES 102. Formation processes, composition and identification of rocks and minerals in the earth's crust with important abundance or special use. Three lectures and one lab two hours per week.

ES 351. Mineralogy. (4) (4G) Prerequisite: ES 102. Corequisite: CHE 101 or consent of the instructor. Identification, classification and description of minerals based on physical properties, crystallography and chemical composition. Includes diagnostic techniques for identification of common ore and rock forming minerals. Three hours of lecture and two hours of lab per week.

ES 352. Petrology. (4) (4G) Prerequisite: ES 350 or ES 351. Introduction to rock specimen identification and classification. Includes processes leading to igneous, sedimentary and metamorphic rock formation and field associations. Three hours of lecture and two hours of lab per week.

ES 353. Sedimentary Processes. (4) (4G) Prerequisites: ES 102, Pre- or corequisites; ES 350 or ES 351 or consent of instructor. Origin, dispersion, deposition, diagenesis, classification and general distribution of sedimentary materials; principles of physical stratigraphy and biostratigraphy. Three hours of lecture and one three-hour lab per week.

ES 354. Geology of the Southeastern United States. (3) (3G) Prerequisites: ES 350 or ES 352, or consent of instructor. An examination by geologic provinces — rocks, minerals and fossils present; structural relationships; historical framework and economic potential. The evolution of the geologic provinces in terms of plate tectonics. Three hours of lecture per week coupled with occasional field trip.

ES 355. Geologic Mapping and Interpretation. (4) (4G) Prerequisites: ES 350 or ES 352, and ES 360, or consent of instructor. A combined field and lab oriented study using principles of

mineralogy, petrology and structural geology. Involves collection and resolution of field data, techniques of presenting data, development of geologic maps, and critical reviews of existing literature. Two hours of lecture, four hours of lab/field work per week.

ES 360. Structural Geology. (4) (4G) Prerequisite: ES 340 or consent of the instructor. A study of the processes of the folding and fracturing of rock. The identification, description and relationships of these and other geologic features. Labs include techniques for solving three dimensional geologic problems based on field data. Three hours of lecture, two hours of lab per week.

ES 362. Fluvial Processes. (4) (4G) A hydrologic and geomorphic study of the transport of water and earth materials within stream systems. Erosion, mass wasting, open channel flow, sediment transport, flooding, stream channel morphology, morphometry of drainage basins and related topics will be stressed. Three hours of lecture, two hours of lab per week.

ES 365. Physical and Geological Oceanography. (3) (3G) Prerequisite: One year of natural science recommended. A study of the principles of oceanography with emphasis on the world-ocean environment, and the interrelationships of its waters and its earthly and atmospheric boundaries. Includes seawater composition, oceanic circulation, perturbations of the sea surface and geology of the ocean basins.

ES 366. Oceanographic Analysis Lab. (1) (1G) Corequisite: ES 365. An introduction to laboratory methods in physical and geological oceanography, concentration on techniques of data acquisition, analysis and interpretation. One two-hour lab per week and occasional field work.

ES 367. Hydrologic Processes. (4) (4G) Prerequisite: ES 101 or 102, or consent of the instructor. An introduction to the atmospheric, soils and geologic aspects of surface and ground water processes. Three lecture hours and one two-hour lab per week.

ES 371. Environmental Quality Management. (3) (3G) A study of concepts and techniques used in the design and implementation of air and water resource management plans.

ES 372. Environmental Impact Analysis. (3) (3G) Prerequisite: 15 hours of earth sciences, including ES 340. A survey of environmental impact requirements and associated procedures, guidelines and methods of assessing physical environmental impacts. Three hours per week of combined lecture and supervised field work.

ES 385. Environmental Geochemistry. (4) (4G) Prerequisites: ES 102 and CHE 101, CHE 102, or consent of instructor. Geochemical factors relating to man and the environment including chemistry of the biosphere, lithosphere and atmosphere, geochemical cycles and the chemical effect of man on his ecosystem. Three lecture hours and one two-hour lab per week.

ES 404. Concept Development in Earth Science. (3) (3G) Prerequisite: Consent of the instructor. Examination of major concepts in earth science with emphasis on implementing their instruction at the primary and secondary school levels. One lecture hour and two laboratory periods of two hours each week.

ES 405. Selected Topics in Earth Sciences. (1-4) (1-4G) Prerequisite: Consent of instructor. An in-depth treatment of specific topics selected from one of the fields of the earth sciences. Topics will vary from semester to semester. May be repeated for credit.

ES 410. Applied Geophysics. (4) (4G) Prerequisites: ES 350 or 352, 353 or 335, 360 and introductory physics or consent of instructor. Instrumental analysis of the earth's physical parameters. Study of man-induced seismic and electrical signals, and natural magnetic and gravitational fields for the purposes of locating faults, ore bodies, ground water and other earth hazards or resources. Three hours of lecture and one two-hour lab per week.

ES 415. Site Analysis. (4) (4G) Prerequisites: ES 350 or 352, 353 or 335, 360 and introductory physics or consent of instructor. Earth science methods used in the intensive study of limited field areas, such as power plant sites, pipe line, tunnel or dam sites, mining locations, or any confined site where earth processes will affect human activity. Includes one two-hour lab.

ES 460. Individual Study in Earth Sciences. (1-4) (1-4G) Permission of the department must be obtained and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit.

ES 480. Internship in Earth Sciences. (3-6) Prerequisite: Consent of the department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The department will attempt to place the selected students in cooperating community organizations to complete specified research or work-related tasks which are based on a contractual arrangement between the student and community organization. The student can receive three to six hours credit depending on the nature and extent of the internship assignment.

Courses for Graduate Students only

ES 650. Workshop in Geography. (4G) a. Earth Science I. A series of lectures on the subject matter of the atmosphere and hydrosphere with accompanying laboratory sessions.

ES 651. Workshop in Geology. (4G) a. Earth Science II. A series of lectures on subject matter of the lithosphere and space science with accompanying laboratory sessions.

ES 660. Earth Sciences Field Investigations. (1-6G) Prerequisite: Consent of instructor. A concentrated field investigation of selected earth sciences topics. Course subject matter, credit hours, location and duration will be specified each time course is offered. May be repeated for credit. *Pass/No Credit* grading.

Department of History

Chairperson: Professor Perzel
Professors: Josephson, Morrill, Patterson, Rieke, Wrigley
Associate Professors: Escott, Johnson
Associate Professor Emeritus: R. Blackwelder
Assistant Professors: Blackwelder, Clark, Haber, Laurent, Rowe
Lecturer: Lanier

B.A. IN HISTORY

A major in history leading to the B.A. degree, except for students in a teacher certificate program, consists of 36 hours of history including HIS 121 and at least six hours selected from HIS 122, HIS 123 or HIS 124. Three semester hours must be taken at the 400 level. Without the special permission of the chairman of the department, no more than 15 hours may be at the 100 level and carry credit for the major. Related work consists of 15 hours of approved work in a discipline other than history, including the option of 15 hours of related work in a multi-disciplinary area, such as International Studies, Black Studies, Women's Studies and American Studies.

A major in history leading to the B.A. degree and secondary teacher certification consists of 30 hours of history including HIS 121 and at least six hours selected from HIS 122, HIS 123 or HIS 124. Three semester hours must be taken at the 400 level. Students seeking certification must take at least three semester hours of American history. Without the special permission of the chairman of the department, no more than 15 hours may be at the 100 level and carry credit for the major. Related work consists of either 15 hours of approved work in one discipline or 21 hours evenly distributed among three of the social sciences (anthropology, economics, geography, political science and sociology) which will qualify the student for certification in social studies. In addition the candidate for secondary certification must fulfill the requirements of the North Carolina Department of Public Instruction.

A major in history leading to the B.A. degree and an intermediate teaching certificate consists of 24 hours in history including HIS 121 and at least six hours selected from HIS 122, HIS 123 or HIS 124. Students seeking certification must take at least three semester hours of American History. Related work must be approved and consistent with the state guidelines for intermediate certification.

Curricula for teacher certification candidates must be in accordance with the curriculum of the College of Human Development and Learning.

The Honors Program in History. The Department of History offers an honors program as well as individual honors courses. Both history majors and non-majors are welcome to participate. A brochure fully outlining the honors program is available in the history office. Study abroad in Asia, Africa, Europe, Latin America or Canada can be arranged.

MASTER OF ARTS IN HISTORY

The Master of Arts in History degree program is designed to assist individuals in developing the methodological, literary and conceptual skills of the professional historian. Graduates of the program will be able to employ this expertise in a variety of ways, as students in a doctoral program, as professionally oriented history teachers in the secondary schools or as citizens more acutely aware of the historical development of their society.

The Department of History offers graduate programs with concentration in European or United States history. Students may also select graduate courses in African, Asian and Latin American history.

Degree Requirements. The Master of Arts in History requires the completion of 30 hours of graduate work with a *B* average in all courses taken for graduate credit and with a maximum of two *Cs* permitted for continuation in the program.

Candidates must complete:

a) 15 out of the 30 hours on the 600 level.
b) A minimum of 24 hours of work in history courses approved for graduate work.
c) Of the 24 hours, no more than six may be taken in individually designed reading courses.
d) At least nine of the 24 hours must be taken in seminars, or colloquia, open only to graduate students.
e) All students must complete HIS 693; Historiography and Methodology with a grade of B or better.

Students may elect six hours of graduate work in another field. Candidates seeking Graduate Education Certification may exercise their elective option by undertaking graduate course work in the College of Human Development and Learning. Students seeking Graduate Education Certification should solicit the advice of the College of Human Development and Learning as to appropriate professional education courses. Should the College of Human Development and Learning require more than six hours for Graduate Education Certification, the additional hours will be added to the total ordinarily completed for the Master of Arts in History.

Candidates must successfully complete a comprehensive written examination in their area of concentration. This examination will be given at or near the completion of course work. A thesis may be substituted for the written examination.

Candidates must successfully complete a final oral examination, which will include a defense of a formal thesis or a seminar paper selected by the student as illustrative of the student's historical research and writing. All requirements must be completed within six calendar years of the date of original enrollment in the program.

Students are not required to demonstrate through examination knowledge of a foreign language; however, the Department of History assumes that a candidate will be able to use whatever languages are required by the candidate's research interests.

All students in the program are expected to maintain a *B* average in all courses taken. Students whose average falls below that level will be subject to suspension on recommendation of the Graduate Committee of the Department of History.

Administration. The admission of students and approval of each student's program shall be the responsibility of the Graduate Committee of the Department of History.

The planning and monitoring of each student's program shall be the function of the Graduate Coordinator. The Graduate Coordinator shall advise and assist the student in selecting an Examining Committee.

The Examining Committee shall conduct the student's comprehensive written and final oral examinations. The Examining Committee shall consist of two faculty members from the Department of History, and a third member selected from History or another department.

At least 24 hours of graduate work must be taken in residence. No more than 12 hours credit, six of which may count toward residence, may be accepted for transfer from other campuses of the University of North Carolina. A maximum of six hours may be accepted from other accredited universities.

COURSE DESCRIPTIONS

Courses Primarily for Lower Division Undergraduates

HIS 100. The World Since 1945. (3) An introductory history course designed to focus on outstanding recent world developments in an historical context.

HIS 120. European History to 1660. (3) Political and cultural developments from antiquity to the Age of Absolutism.

HIS 121. European History Since 1660. (3) A survey of European history from the Age of Absolutism to the present.

HIS 122. Introduction to Asian History. (3) A survey of Asian history from early times to the present.

HIS 123. Introduction to Latin American History. (3) A survey of the cultural, political and economic developments in Latin America.

HIS 124. Introduction to African History. (3) An introduction to major cultural, economic and political developments in Sub-Saharan Africa.

HIS 125. U.S. History I. (3) Survey of American history from the earliest times to 1865.

HIS 126. U.S. History II. (3) Survey of American history from 1865 to the present.

HIS 130. History — Film. (3) Treatment of a historical topic, problem or theme. Students may receive credit toward graduation for more than one course under this rubric. History majors may receive credit toward the fulfillment of the hours for a major from only one course under this rubric.

HIS 130A. Kenneth Clark's *Civilisation.* An interdisciplinary humanistic introduction to European cultural history. The progress of European civilization as demonstrated by its art, architecture, music and literature.

HIS 130B. *Ascent of Man.* A multi-disciplinary introduction to the history of social and physical science based upon the *Ascent of Man* by Jacob Bronowski. Films are supplemented with lectures.

HIS 250. Topics and Honors in History. (3) Prerequisite: Consent of instructor in case of honors. Treatment of an historical topic. May be repeated for credit.

Courses Primarily for Advanced Undergraduates

HIS 301. The Early Middle Ages (312 A.B.-1066 A.D.) (3) Western Europe from Constantine to the Norman Conquest.

HIS 302. The High and Later Middle Ages (1056 A.D.-1349 A.D.) (3) Western Europe from the struggle between the empire and the papacy to the Black Death. A study of the crusades, origin of towns, parliaments, the middle class, universities, the secularization and centralization of governments.

HIS 303. History of Greece. (3) From the beginning of civilization in Greece to 323 B.C.

HIS 304. History of Rome. (3) From the beginning of civilization in Italy to 284 A.D.

HIS 306. The European World in the Era of the French Revolution. (3) The role of the Enlightenment, the French Revolution and Napoleon in the destruction of the Old Regime and the creation of modern political and social traditions.

HIS 307. The Italian Renaissance. (3) The world of Dante, Petrarch, Michelangelo and Machiavelli.

HIS 308. Reformation Europe. (3) The breakdown of the Medieval religious synthesis and the progress of the Protestant Reformation from Martin Luther's *95 Theses* to the death of John Calvin.

HIS 309. Nineteenth Century Europe, 1814-1914. (3) A survey of the major political developments in European history from the Congress of Vienna: liberalism, nationalism, imperialism and the diplomacy leading to World War I.

HIS 310. Twentieth Century Europe, 1914 to the Present. (3) A review of the causes and results of World War I, followed by an intensive study of the problems of peace, rise of new governments, collapse of collective security, World War II and the postwar period.

HIS 311. Russian History from Earliest Times to 1801. (3) A survey of the development of the Russian people, focusing upon the rise and fall of the Kievan state, the impact of the period of Tartar domination, the rise of Muscovy, and the growth of Tsarist autocracy before the reign of Alexander I.

HIS 312. Russian History from 1801 to 1917. (3) A survey of the decline and fall of the Tsarist empire, focusing upon the efforts of the last four rulers to perpetuate the monarchy and upon the factors working against the effort.

HIS 313. Russian History from 1917 to the Present. (3) A survey of the development of Soviet Russia, focusing upon the October 1917 Revolution, Lenin's years of rule, Stalin's rise to power, the Five Year Plan and the years since World War II.

HIS 314. History of Socialism and Communism. (3) A broad treatment of socialism before the establishment of the First International, followed by analysis of the socialist and communist movements until the present.

HIS 315. A Military History of World War II. (3) An analytical and descriptive treatment of the major campaigns of World War II with emphasis upon the European theater of operations.

HIS 316. European Intellectual History Since 1789. (3) A survey of leading thinkers in the development of philosophic, scientific, and political thought.

HIS 320. World War I. (3) This course will deal with the important events of World War I from the outbreak of hostilities to the peace settlement. It will treat these events in terms of their impact on the combatant nations and relate them to the subsequent development of the World.

HIS 321. Later Roman Empire. (3) A study of the continuation of the Roman Empire.

HIS 322. Origins of Eastern Europe. (3) A study of the struggle against Arab, Turk and Latin invaders.

HIS 329. Disease and Medicine in History. (3) The development of medical knowledge, trends in the techniques and availability of medical and psychiatric care, and the impact of disease and medicine on selected problems in world history.

HIS 330. American Medical History. (3) A course designed to introduce the student to the history of American medicine and the relationship between medical thought and changing cultural beliefs.

HIS 332. South Africa. (3) A study of the major population groups of South Africa from earliest times to the present. Emphasis on the assertion and maintenance of European rule in the nineteenth and twentieth centuries.

HIS 334. Modern African History. (3) Major developments in Sub-Saharan Africa from the nineteenth century to the present, with stress on the commercial and religious revolutions of the nineteenth century, the impact of colonial rule and the triumph of modern African nationalism.

HIS 336. China in Revolution. (3) A study of the last 200 years of history with emphasis on the history of the Chinese Revolution and the post-1949 developments.

HIS 337. History of Modern Japan. (3) The history of Japan from about 1600 to the present covering Japan's intellectual, social and economic transformation from an agricultural society to an industrial power.

HIS 338. The West in Asia: Imperialism, Colonialism and Modern Nationalism. (3) A study of Western expansion in Asia beginning with the East India companies with concentration on modern imperialism in the nineteenth and twentieth centuries.

HIS 340. History of Argentina. (3) A survey of Argentine history from the late colonial period to the present. Emphasis will be placed on changes in Argentine economic and social structures and their relation to political developments.

HIS 342. Mexico and Cuba in the 20th Century. (3) The social and economic forces leading to the revolutionary outbreaks of 1910 and 1953 and the political contexts in which they occurred. Special emphasis will be placed on post-revolutionary developments in each country.

HIS 343. The United States and Latin America. (3) A survey of the relations between the United States and Latin America. The course will analyze the growth of U.S. economic and political interest in Latin America and the impact of U.S. influence in that region.

HIS 349. Introduction to Historic Preservation. (3) A systematic review and analysis of the techniques available in the United States to identify and preserve historically significant structures, buildings, sites, areas and objects.

HIS 350. Topics and Honors in History. (3) Treatment of an historical topic. May be repeated for credit.

HIS 351. Independent Projects in History. (3) Prerequisite: Consent of instructor. Individual research or readings on an historical topic. May be repeated for credit with consent of the coordinator and instructor.

HIS 361. Britain to 1688. (3) Survey of British history with emphasis on institutional, cultural, economic and imperial developments.

HIS 362. Britain since 1688. (3) Continuation of History 361 with some treatment of the British Empire.

HIS 368. The Emergence of Modern Germany. (3) A political survey to the mid-nineteenth century, emphasizing the dual role of Prussia and Austria in the German world.

HIS 369. Twentieth Century Germany. (3) The Wilhelmine Empire, the Wiemar Republic, the Third Reich and the two Germanies.

HIS 371. Colonial America. (3) Colonial history from the discoveries to 1763.

HIS 372. The American Revolution and Early Nation. (3) The achievement of independence and the formation of a national government, 1763-1800.

HIS 375. Civil War and Reconstruction, 1860-1877. (3) A study of the American people in war and the postwar adjustment. Emphasis is placed on the political, social and economic conditions of the North and South during the Civil War and Reconstruction period.

HIS 377. United States in the Twentieth Century, 1901-1932. (3) An intensive study of the political, economic, social and intellectual aspects of American democracy from 1901 to the Great Depression. Special emphasis on the impact of industrialization, American reform and the entry of the United States into the international arena.

HIS 378. United States in the Twentieth Century, 1932-Present. (3) An intensive study of the political, economic, social and intellectual aspects of American democracy from the New

Deal to the Great Society. Special emphasis on the New Deal and post-New Deal reform as well as America's role in world affairs.

HIS 379. History of the South to 1865. (3) A survey of the South from colonial origins through the Civil War. Emphasis is placed on the political and cultural developments which ultimately led the South to secession and the creation of a distinct Southern nation in the confederacy.

HIS 380. History of the South since 1865. (3) A survey of Southern history from Reconstruction to the present. Emphasis is placed on race and class relations as the South copes with change. Special attention is given to the Civil Rights Movement, industrialization and urbanization.

HIS 381. Radicalism and Reform in the U.S. (3) A study of radical and reform efforts from the Revolutionary War to the present. Emphasis is placed on the development of the radical and reform traditions and their interaction through two centuries of American history.

HIS 383. American Cities. (3) An introduction to recent concepts and research in U.S. urban history. The city as a physical place, as a socio-political environment and as a cultural center. Emphasis is placed on the social developments caused by urbanization.

HIS 384. Crime and the Police. (3) An emphasis upon the historical development of criminal behavior, criminal law, the criminal courts, the police and the penitentiary system.

HIS 386. United States Foreign Relations, 1901-Present. (3) A study of American diplomatic history from the administration of Theodore Roosevelt to the present. Special emphasis will be placed upon the interaction between domestic, economic, political and social changes and the formulation of American foreign policy.

HIS 387. United States Social History to 1860. (3) An examination of the ideas, groups and institutions that shaped early America, with emphasis upon the changes in family, religion, community and class.

HIS 388. United States Social History since 1860. (3) An examination of the ideas, groups and institutions that evolved from the Civil War to the present, with emphasis upon the formation of modern-day American society.

HIS 389. History of Women in the U.S. (3) An examination of the changing experience, status and role of women from colonial times to the present.

HIS 391. History of North Carolina. (3) Emphasis on the colonial and on the constitutional, educational and economic developments of the antebellum period.

HIS 393. The Frontier in United States History. (3) A study of the influence of the frontier on the historical development of the United States. Emphasis will be placed on the trans-Mississippi Western United States.

Courses for Advanced Undergraduates (and Graduates as Designated)

HIS 411. Problems in History. (3) (3G) A colloquium designed around a problem in history, utilizing reading, discussion, reports and short papers. Topics vary within the fields of American, European, Latin American, African and Asian history. May be repeated for credit.

HIS 416. Recent United States Radicalism. (3) (3G) Radical thought and action in the United States since 1890. Emphasis on Marxian-Socialism, Black and labor radicalism, radical women and the new Left movement.

HIS 450. Senior Honors Thesis. (3) Prerequisite: Consent of the instructor. The preparation and presentation of an acceptable honors thesis or its equivalent.

HIS 490. The Nature of Historical Study. (3) A course which examines the historian, his presuppositions, methods, objectives and their impact on the development of historical literature.

HIS 491. History Internship. (1-3) (1-3G) Applied historical techniques utilizing modern methodology and experiences in off-campus institutions or on historical sites. May be repeated for credit.

HIS 492. Seminar in History. (3) (3G) Prerequisite: Consent of the department. An intensive examination of a subject in history. May be repeated for credit.

Courses for Graduate Students Only

HIS 601. Directed Readings/Research. (3G) Prerequisite: Prior written consent of instructor and graduate coordinator.Graduate students will meet individually or in small groups with the instructor and will be assigned readings and/or research on a theme which relates to the lectures of an undergraduate class. Attendance at the lectures is a course requirement, but evaluation and credit will be based on directed readings/research and conferences or small group discussion. May be repeated for credit.

HIS 602. Curriculum Materials in History. (3G) Prerequisite: Prior written consent of instructor and graduate coordinator. May be repeated for credit. Graduate students will meet individually or in small groups with the instructor and will develop syllabi, lesson plans, bibliographies and instructional materials on a theme which relates to the lectures of an undergraduate class. Attendance at the lectures is a course requirement, but evaluation and credit will be based on the curriculum materials developed and on conference or small group discussion.

HIS 650. Topics in History. (3G) Intensive treatment of a period of broader survey of a topic, depending on student needs and staff resources. May be repeated for credit.

HIS 693. Historiography and Methodology. (3G) A study of the historian and his philosophical and methodological approach. Required of all M.A. candidates.

HIS 694. Readings in History. (3G) Prerequisite: Prior written consent of instructor. Coverage of historical periods or topics through individually designed reading programs; scheduled conferences with a staff member. May be repeated for credit.

HIS 696. Graduate Colloquium. (3G) A colloquium focused on a theme or period. Assigned readings, short papers and reports directed toward developing research and writing skills. May be repeated for credit.

HIS 697. Directed Research. (3G) Prerequisite: Prior written consent of instructor. Investigation of a historical problem culminating in a research paper. May be repeated for credit.

HIS 699. Thesis. (3G or 6G) May be repeated by permission, if taken for three hours credit. Six hours of Thesis may be taken during a single semester. Appropriate research and writen exposition of that research is required.

Humanities

COURSE DESCRIPTIONS

HUM 301. The Meaning of Death. (3) An investigation into the experience of death in the western tradition. Study of selected philosophical, religious, existential, psychological and literary readings with a view of clarifying the conceptual problems involved in our ways of speaking about death. Explorations into the understanding of death as a horizon for understanding life.

HUM 302. India: A Cultural Study. (3) An inquiry into the life and cultures of India with special reference to its history, society, life-styles, religions, literature and the arts from the Indus Valley, from 3000 B.C. to the British raj and contemporary India. Attention also to India's future as a traditional people and culture encounter the contemporary world and modernity.

HUM 303. The Surviving Female. (3) An introductory study of various definitions and levels of survival from a woman's perspective, including both pragmatic and theoretical dimensions. Using an interdisciplinary approach, the course has the following basic components: (a) Self-definition through writing and examining autobiographies in terms of the values, institutions and socialization processes which have influenced autobiographies. (b) Informed analysis through reading and analyzing selected materials in various disciplines; research and knowledge sharing through a semester-long research project, which is published in some form in order to share findings with others.

HUM 350. Topics in Humanities. (3) (May be repeated for credit with consent of the student's major department.) Prerequisite: Junior standing and consent of the sponsoring departments. Topics chosen from the general area of the humanities in order to demonstrate relationships and interdisciplinary influences.

HUM 450. Non-Residential Studies. (1 to 15 hours). Experience outside the University arranged cooperatively by the student and his major department for the purpose of applying, extending, adding to or elaborating the student's studies in his major. (All arrangements must be approved prior to the student's embarking on the study. Such arrangements will include a written proposal of the goals, methods, duration, hours-credit and evaluation of the project.) To be developed, approved, supervised and evaluated by the student's major department (with the cooperation of others as appropriate). Grading may be on a pass/fail basis. Ordinarily to be taken no earlier than the junior year. No more than 15 hours of Non-Residential studies may be presented by a student.

Department of Mathematics

Chairperson: Professor Weinstock
Professors: Goodrum, Nixon, Schell
Associate Professors: Abdel-Hameed, Hedstrom, Hintz, Houston, Johnson, Lambert, Leiva, Lucas, Niccolai, Papadopoulos, Quinn, H. Reiter, Schurle, Solian, Stavrakas, Wichnoski
Associate Professor Emeritus: Markham
Assistant Professors: Chen, Li, Liaw, Reed, Roth, Shafer, Stewart, Stiff, Wright
Lecturers: Anderson, Kohn, Lover, Orinson, Priebe, B. Reiter, Schoeps, Sink, Thomas, Twery

BACCALAUREATE DEGREES

Two baccalaureate degrees are offered by the Department of Mathematics, a Bachelor of Arts degree and a Bachelor of Science degree. Within each degree one may select one of two options, either the option in Mathematics or the option in Computer Science. The description of the Mathematics option follows immediately. The description of the Computer Science option begins on page 174.

Option in Mathematics

A major in mathematics for the B.A. degree consists of a minimum of 32 semester hours of mathematics courses numbered 140 and above. These currently include Mathematics 141, 142, 241, 263, 264, 271 and 12 hours of approved courses numbered 300 or above. CSC 100 is also required. Related work must be approved by the Department.

A major in mathematics for the B.S. degree consists of a minimum of 38 semester hours of mathematics courses numbered 140 and above. These currently include Mathematics 141, 142, 241, 263, 264, 271, 341 and 15 hours of approved courses numbered 300 or above. CSC 100 is also required. Related work must be approved by the Department.

A student planning to study mathematics in graduate school should take French, German or Russian.

An elective minor is required for both the B.A. and B.S. degrees and consists of at least 18 semester hours of courses other than MAT courses. The minor must be approved by the Mathematics Department.

For both the B.A. and B.S. degrees a major must have at least a 2.00 quality point average in each of the following three categories: (1) all courses applied to the degree, (2) all courses in the major option, (3) all upper division courses in the major option.

An entering freshman who plans to take Mathematics 141, in particular a mathematics major, will first enroll in Mathematics 103, unless exempted by the Department. It is recommended that a prospective freshman major enroll in this course during the summer session immediately preceding his freshman year.

Specific requirements for the B.A. and B.S. degrees will vary with the specific objectives of the student. Some objectives which are possible are: graduate work, applied mathematics, statistics, computer science, certification for elementary or secondary teaching. Students preparing for secondary school certification should follow the suggested curriculum on pages 173-174.

SUGGESTED CURRICULUM FOR THE B.A. OPTION IN MATHEMATICS

Freshman Year

Mathematics 141	4	Mathematics 142	4
English 101	3	English 102	3
Social Science	3	CSC 100	3
Language (or Elective)	4 (3)	Language (or Elective)	4 (3)
	14 (13)		14 (13)

Sophomore Year

Mathematics 241	3	Mathematics 271	3
Mathematics 263 (or 264)	3	Mathematics 264 (or 263)	3
Humanities	3	Humanities	3
Science	4	Science	4
Related Work	3	Related Work	3
	16		16

Junior Year

Mathematics 3xx or 4xx	3	Mathematics 3xx or 4xx	3
Related Work	3	Related Work	3
Social Science	3	Electives	9
Electives	6		
	15		15

Senior Year

Mathematics 3xx or 4xx	3	Mathematics 3xx or 4xx	3
Related Work	3	Related Work	3
Electives	10	Electives	8-10
	16		14-16

SUGGESTED CURRICULUM FOR THE B.S. OPTION IN MATHEMATICS

Freshman Year

Mathematics 141	4	Mathematics 142	4
English 101	3	English 102	3
Social Science	3	CSC 100	3
Language (or Elective)	4 (3)	Language (or Elective)	4 (3)
	14 (13)		14 (13)

Sophomore Year

Mathematics 241	3	Mathematics 271	3
Mathematics 263 (or 264)	3	Mathematics 264 (or 263)	3
Humanities	3	Humanities	3
Science	4	Science	4
Related Work	3	Related Work	3
	16		16

Junior Year

Mathematics 341	3	Mathematics 3xx or 4xx	3
Science	3-4	Related Work	3
Related Work	3	Electives	9
Social Science	3		
	15-16		15

Senior Year

Mathematics 3xx or 4xx	6	Mathematics 3xx or 4xx	6
Related Work	3	Related Work	3
Electives	6	Electives	6-8
	15		15-17

SUGGESTED CURRICULUM FOR THE B.A. OPTION IN MATHEMATICS (SECONDARY SCHOOL CERTIFICATE)

Freshman Year

English 101	3	English 102	3
Mathematics 141	4	Mathematics 142	4
Health Education 201 or PE 310	3	Social Science*	3
Social Science*	3	Elective	6
Elective	3		
	16		16

Sophomore Year

Mathematics 241	3	Mathematics 271	3
HDL 260	3	Lab Science	4
CSC 100 or 101	3	HDL 280	3
Lab Science	4	Electives	6
Elective	3		
	16		16

Junior Year

Mathematics 409	3	Mathematics Education 571	3
Mathematics 264	3	Mathematics 381	3
Mathematics Elective (3xx-4xx)	3	Mathematics 263	3
Humanities	3	Humanities	3
SED 360	3	Mathematics 522	3
	15		15

Senior Year

TED 340	3	Internship Semester	
RED 440	3	SEC 490	9
RDG 525	3	SEC 491	3
Electives	5		
	14		12
		Total Credits	120

* At least two areas suggested from Anthropology, Economics, Geography, History, Political Science, Sociology.

** To meet general degree requirements set by the University.

NOTE: Deviations from the above are possible. Examples of acceptable changes include an upper level topics in geometry course rather than MAT 381, MAT 122 instead of MAT 522 (with an upper level MAT course added to meet degree requirements), and competency in computer science other than through CSC 100 or 101. Advisers or students who have questions about other possible alternatives should confer with the Department of Mathematics.

The Honors Program in Mathematics. The overall purpose of this program is to stimulate the imagination of the student by encouraging independent study and by freeing him to a certain extent from the more structured program which leads to a B.A. or B.S. in Mathematics. The program in honors will be kept as flexible as possible to allow students with different interests and abilities to benefit from it.

Any student may request entrance into the honors program at any time. A student in any one of the honors courses shall receive a grade of *Pass Honors*, *Pass*, or *No Credit*. The minimum required to obtain Honors in Mathematics is participation in two semesters of the Senior Honors Tutorial with a grade of *Pass Honors*, completion of a thesis and examination of the candidate by the Honors Committee of the Department of Mathematics upon his honors work.

MAT 390H. Junior Honors Seminar. (3) Prerequisite: Consent of the Department. (May be repeated once for additional credit with approval of the Department.)

MAT 490H. Senior Honors Tutorial. (3) Prerequisite: Consent of the Department. Individual tutorials in which the student will pursue independent study and research in any area of mathematics under the direction of one or more faculty members. The project of the student will be planned to culminate in a research paper of original or expository nature. (May be repeated for additional credit with the approval of the Department.)

Option in Computer Science

A major for the B.A. degree under the Computer Science option consists of a minimum of 17 semester hours of mathematics courses numbered 140 and above and 28 semester hours of computer science courses. These currently include Mathematics 141, 142, 264 and six approved semester hours of mathematics courses numbered 200 or above; and Computer Science 100, 211 or 213 or 214, 240, 241, 260, 288, 289, 341 or 450, 361 (or MAT 316) and six semester hours of approved computer science courses numbered 300 or above.

A major for the B.S. degree under the Computer Science option consists of a minimum of 20 semester hours of mathematics courses numbered 140 and above and 37 semester hours of computer science courses. These currently include MAT 141, 142, 264 and nine approved semester hours of mathematics numbered 200 or above; and Computer Science 100, 211 or 213 or 214, 240, 241, 260, 223 or 273, 288, 289, 341, 361 or MAT 316, six semester hours of approved computer science courses numbered 300 and above and a six-hour Senior project (CSC 450-451).

For both the B.A. and B.S. degrees, a major must have at least a 2.0 quality point average in each of the following three categories: (1) all courses applied to the degree, (2) all courses in the major option, (3) all upper division courses in the major option.

An elective minor is required for both the B.A. and the B.S. and consists of at least 15 hours of courses other than computer science courses or nine hours of MAT 3xx or higher; the minor must be approved by the Mathematics Department.

SUGGESTED CURRICULUM FOR THE B.S. OPTION IN COMPUTER SCIENCE

Freshman Year

Mathematics 141	4	Mathematics 142	4
CSC 100	3	CSC 211 or 213 or 214	3
English 101	3	English 102	3
Science	4	Science	4
	14		14

Sophomore Year

Mathematics 264	3	Mathematics 2xx or 3xx	3
CSC 240	3	CSC 241	3
CSC 223 or 273	3	CSC 260	3
Humanities	3	Humanities	3
Minor	3	Minor	3
	15		15

Junior Year

Mathematics 2xx or 3xx	3	Mathematics 2xx or 3xx	3
Elective	4	CSC 361	3
CSC 341	3	Social Science	3
Social Science	3	Minor	3
Minor	3	Electives	4
	16		16

Senior Year

CSC 3xx/4xx	3	CSC 3xx/4xx	3
CSC 450	3	CSC 451	3
Minor	3	Electives	9
Electives	6		
	15		15

SUGGESTED CURRICULUM FOR THE B.A. OPTION IN COMPUTER SCIENCE

Freshman Year

Mathematics 141	4	Mathematics 142	4
CSC 100	3	CSC 211 or 213 or 214	3
English 101	3	English 102	3
Science	4	Science	4
	14		14

Sophomore Year

Mathematics 264	3	Mathematics 2xx or 3xx	3
CSC 240	3	CSC 241	3
Social Science	3	Social Science	3
Humanities	3	Humanities	3
Minor	3	Minor	3
	15		15

Junior Year

Mathematics 2xx or 3xx	3	CSC 260	3
CSC 3xx	3	Minor	3
Minor	3	Electives	10
Electives	7		
	16		16

Senior Year

CSC 3xx	3	CSC 361	3
CSC 341 or 450	3	Elective	3
Minor	3	Minor	3
Electives	6	Electives	6
	15		15

MASTER OF ARTS IN MATHEMATICS

The Master of Arts in Mathematics is designed to provide advanced skills and knowledge for those seeking positions in industry or in government, or teaching positions at the junior college or community college level, and to provide professional development to those currently in such positions. Graduates of the program will also be well trained to enter directly into at least the second year of a Ph.D. program in mathematics at other institutions.

Degree Requirements. The Master of Arts in Mathematics requires successful completion of a minimum of 30 semester hours of graduate work approved by the Department Graduate Committee. At least 15 hours applied to the degree must be in mathematics courses at the 700 level; at least one of these courses must be in real or complex analysis and at least one selected from the areas of linear algebra, modern algebra or topology. The candidate must demonstrate competence on general mathematical knowledge in at least three of the following areas; algebra, applied mathematics, real analysis and topology. This may be accomplished by means of either a) successful performance on a written comprehensive examination, or b) successful completion of courses in these areas. In addition, all candidates must perform satisfactorily on an oral comprehensive examination over the candidate's program of graduate study.

Completion of a satisfactory thesis is optional. With the approval of the Departmental Graduate Committee, a candidate may receive at most six of the 15 hours required at the 700 level for the writing of a master's thesis. Subject to the approval of the Departmental Graduate Committee, this thesis may be either original work, work of an expository nature, or the mathematical formulation and solution of a particular industrial or business problem suggested by the career interests of the student. If the thesis option is elected, the candidate will be required to defend his/her thesis in an oral examination.

MASTER OF ARTS IN MATHEMATICS EDUCATION

The Master of Arts degree program in Mathematics Education is designed primarily for secondary school teachers interested in professional growth and graduate certification in mathematics. This program of studies is coordinated as an interdisciplinary program between the Department of Mathematics and the College of Human Development and Learning. Emphasis in this program is given to developing depth and breadth in mathematics appropriate to the role of the teacher. The requirements of the program of studies include a major of 18 semester hours of graduate credit in mathematics, six semester hours of graduate credit in Human Development and Learning and six semester hours of electives in mathematics, Human Development and Learning or a third department. It is strongly recommended that candidates completing only six semester hours of credit in Human Development and Learning select HDL 600 and CAI 620.

For this degree program, the adviser shall be assigned from the Department of Mathematics.

Course Requirements. After the admission to graduate study at the University of North Carolina at Charlotte, the candidate must successfully complete a minimum of 30 semester hours of work in courses approved for graduate credit. Of these, at least 15 hours must be taken from courses open to graduate students only. Courses will be distributed as follows:

1. *Mathematics* ..... 18 semester hours

   Successful completion of six three-hour graduate courses or the equivalent. At least three of these must be in courses open only to graduate students.

2. *Professional Education* ..... 6 semester hours

   Successful completion of at least two three-hour graduate courses or the equivalent as approved by the College of Human Development and Learning. HDL 600 and CAI 620 are recommended.

3. *Electives* ..... 6 semester hours

   Successful completion of at least two three-hour graduate courses or the equivalent. One or both of these may be in areas of mathematics, professional education or a related area approved by the student's adviser.

Thirty semester hours of graduate credit or the equivalent are the minimum required for the degree and for graduate certification. Programs of study beyond the 30 semester hours of graduate credit may be required to remove deficiencies in undergraduate programs, to develop areas of need, interests or needed experience. The student's adviser may recommend additional credits beyond the 30 semester hours required, or equivalent experiences may be designed.

Approval of the program of each student and advice regarding his progress toward the degree will be the responsibility of an adviser appointed at the time of his admission to the Department of Mathematics.

Each student must pass a comprehensive examination (including an oral examination) on overall work presented for the degree.

COURSE DESCRIPTIONS

MATHEMATICS

The first digit of each course number indicates the year in which the course is normally taken: 1 denoting the freshman year and 2, 3, 4 denoting the sophomore, junior and senior years respectively; a first digit of 5 denotes graduate courses which are also open for undergraduate credit; first digits of 6 and 7 denote courses open only for graduate credit.

The middle digit of each course number generally indicates the subarea of mathematics to which the course belongs according to the following scheme —

0: General concepts; foundations and history of mathematics
1: Decision mathematics
2: Probability or statistics
3: Mathematics Education
4: Analysis
5: General topics
6: Algebra
7: Applied mathematics
8: Geometry-topology
9: Seminars and independent study

(MAT 120 is the only exception to this schedule.)

Courses for Undergraduates

MAT 101. Finite Mathematics. (3) Quick review of elementary algebra; Cartesian coordinates, lines, linear inequalities, half-planes; elementary matrix algebra; solution of small systems of linear equations; elementary linear programming; introduction to probability: sample spaces, conditional probability, independent events, expected value, Bayes' Formula, Bernoulli trials. This course normally should be taken as the initial course in Mathematics by students majoring in disciplines other than engineering or the natural sciences.

MAT 103. Precalculus Mathematics. (3) Fundamentals of algebra, functions and graphs, linear equations and functions, quadratic functions, algebra of rational functions, exponential and logarithmic functions, trigonometric functions, trigonometric identities, addition and multiple-angle formulae, law of sines and cosines.

MAT 103A. Concepts of Trigonometry. (1) Prerequisite: Placement by the Department of Mathematics. A brief study of the trigonometric functions; trigonometric identities; solution of equations and triangles; graphs of trigonometric functions. (Credit not given for both Mathematics 103 and 103A.)

MAT 105. Computational Matrix Algebra. (1) Prerequisite: None. An introduction to the solution of systems of linear algebraic equations. Basic properties of matrices and determinants will be introduced and several methods of solution for linear algebraic systems will be developed. The computational efficiency of the solution techniques will be compared. Further topics to include the algebra of complex numbers; two and three dimensional vector algebra, inner product and vector cross product. One lecture and one laboratory meeting per week.

MAT 120. Calculus. (3) Prerequisite: MAT 101 or 103. A brief treatment of basic concepts of differential and integral calculus with applications to business and to the social and life sciences; polynomial, exponential and logarithmic functions.

MAT 122. Elements of Statistics I. (3) Prerequisite: MAT 101 or 103. An introduction to the principles of statistical measures of hypothesis testing. Mean, variance, standard deviation; confidence intervals; binomial and normal distributions; contingency tables, chisquare test; nonparametric tests including the sign test and rank sum test, the t-test; linear regression correlation and an introduction to analysis of variance and multiple regression.

MAT 123. Elements of Statistics II. (3) Prerequisite: MAT 122. An extension and development of materials introduced in MAT 122, to include two sample tests, contingency analysis, design of experiments, and regression analysis.

MAT 141. Differential and Integral Calculus I. (4) Prerequisite: MAT 103. Functions and graphs, limits and continuity of R→R functions; differentiation and integration of rational, trigonometric, exponential and logarithmic functions; curve sketching and maxima-minima theory and applications; area.

MAT 142. Differential and Integral Calculus II. (4) Prerequisite: MAT 141 with a grade of C or better. Applications of integration; methods of integration; improper integrals, infinite series; indeterminate forms; Fourier series; conic sections; hyperbolic functions.

MAT 211. Introduction to Operations Research. (3) Prerequisites: MAT 120 and CSC 100. Modeling and Graph theory with applications to linear programming, critical path analysis, transportation and allocation problems, and queueing theory.

MAT 221. Introduction to Probability. (3) Prerequisite: MAT 101 or 103. A study of the elements of probability theory. Sample spaces, events, probability of an event, conditional probability, independent events. Random variables, mean, variance and standard deviation, joint probability functions, independent random variables, sampling covariance and correlation. Binomial distribution and hypothesis testing.

MAT 241. Differential and Integral Calculus III. (3) Prerequisite: MAT 142 with a grade of C or better. Polar coordinates; vectors; quadratic surfaces; differential calculus of several variables; multiple integration and applications.

MAT 263. Introductory Modern Algebra. (3) Prerequisite: MAT 103. The content is chosen to emphasize the axiomatic approach to algebraic structures through many concrete examples taken from rings, finite fields, polynomials and groups. The course is intended to familiarize the student with algebraic structures by emphasizing that abstract concepts arise from the analysis of concrete situations. It also facilitates the transition to more advanced algebra courses.

MAT 264. Matrices and Linear Algebra. (3) Prerequisite: MAT 103. This course will emphasize the following topics: Algebra of matrices, solutions of linear equations; abstract vector spaces, determinants, similarity of matrices, inner products and unitary similarity, quadratic forms. This course provides a firm foundation and working knowledge of these areas and is of particular value to engineering, science and mathematics majors.

MAT 271. Differential Equations. (3) Prerequisite: MAT 142 with a grade of C or better. An introduction to the study of differential equations; first order equations; general theory of ordinary linear differential equations; Laplace transform.

Courses for Advanced Undergraduates (and Graduates as Designated)

NOTE: 300-level courses are *not* approved for the M.A. in Mathematics.

MAT 300. Topics in Foundation or History of Mathematics. (2-3) (2-3G) Prerequisite: Consent of the department. Topics in the foundations or the history of mathematics selected so as to supplement regular course offerings in this area of mathematics. Topics may be proposed by students and/or faculty and must be approved by the Department. (May be repeated for additional credit with approval of the Department.)

MAT 310. Topics in Decision Mathematics. (2-3) (2-3G) Prerequisite: Consent of the Department. Topics in decision mathematics selected so as to supplement regular course offerings in this area of mathematics. Topics may be proposed by students and/or faculty and must be approved by the Department. (May be repeated for additional credit with the approval of the Department.)

MAT 311. Operations Research: Deterministic Models. (3) (3G) Prerequisites: MAT 142 and 264. Linear, integer and dynamic programming, the simplex method and applications.

MAT 313. Operations Research: Probabilistic Models (3) (3G) Prerequisites: MAT 142 and 221. Stochastic processes, Markov chains, queueing theory, decision analysis and applications.

MAT 316. Graph Theory. (3) Prerequisite: Junior standing or consent of the Department. A study of paths, trees, connectivity, planarity, duality, colorability, enumerability and vector spaces of graphs. Applications will be made to computer alogorithms, switching and coding theory, transportation networks and Markov processes.

MAT 320. Topics in Probability and Statistics. (2-3) (2-3G) Prerequisite: Consent of the Department. Topics in probability and statistics selected so as to supplement regular course offerings in this area of mathematics. Topics may be proposed by students and/or faculty and must be approved by the Department. (May be repeated for additional credit with the approval of the Department.)

MAT 322. Probability and Statistics I. (3) (3G) Prerequisite: MAT 241 with a grade of *C* or better. Continuous and discrete sample spaces, continuous and discrete random variables, moments and moment generating function, functions of random variables, some standard distributions, multivariate variables, laws of large numbers, limit theorems, stochastic processes.

MAT 323. Probability and Statistics II. (3) (3G) Prerequisite: MAT 322. Estimation, bias, consistency, efficiency, method of moments, maximum likelihood estimates, sufficient statistics, testing hypothesis, simple hypothesis, most powerful test, composite hypothesis, the power function, uniformly most powerful test, sequential tests, the sequential likelihood ratio test, some one sample problems, the classical chi-square test, the Kolmogorov-Smirnov test.

MAT 340. Topics in Analysis (2-3) (2-3G) Prerequisite: Consent of the department. Topics in analysis selected so as to supplement regular course offerings in this area of mathematics. Topics may be proposed by student and/or faculty and must be approved by the department. (May be repeated for additional credit with the approval of the Department.)

MAT 341. Advanced Calculus of One Variable. (3) (3G) Prerequisites: MAT 241 and junior standing. Least upper bound principle; sequences; sequences of functions; topology of the real line; continuity and uniform continuity of functions; differential calculus; Riemann integration.

MAT 342. Advanced Calculus of Several Variables. (3) Prerequisites: MAT 241 and MAT 264. Elementary calculus is extended to several variables and the classical theorems are treated in a modern setting. Topics include functions on Euclidean space, differentiation, inverse and implicit function theorems, integration, Fubini's theorem, change of variables, integration on chains, the fundamental theorem of calculus, integration on manifolds, Stokes' theorem, the classical integral theorems.

MAT 346. Introduction to Complex Analysis. (3) (3G) Prerequisite: MAT 241 with a grade of *C* or better. Analytic function theory; complex integration, sequences; series; residue calculus and conformal mapping.

MAT 360. Topics in Algebra. (2-3) (2-3G) Prerequisite: Consent of the Department. Topics in algebra selected so as to supplement regular course offerings in this area of mathematics. Topics may be proposed by students and/or faculty and must be approved by the Department. (May be repeated for additional credit with the approval of the Department.)

MAT 366. Combinatorial Mathematics. (3) Prerequisite: MAT 241. The theory and application of the following enumerative techniques will be emphasized: permutations of dis-

tinct and non-distinct objects; generating functions for combinations, enumerators for permutations, recurrence relations, inclusion-exclusion principle, derangements, permutation groups, equivalence classes of functions and Polya's theory of counting.

MAT 370. Topics in Applied Mathematics. (2-3) (2-3G) Prerequisite: Consent of the Department. Topics in applied mathematics selected so as to supplement regular course offerings in this area of mathematics. Topics may be proposed by students and/or faculty and must be approved by the Department. (May be repeated for additional credit with the approval of the Department.)

MAT 371. Applied Mathematics I. (3) (3G) Prerequisites: MAT 271 and 241 with grades of *C* or better. Separation of variables techniques for the classical partial differential equations of mathematical physics; Fourier series; Sturm-Liouville theory.

MAT 372. Applied Mathematics II. (3) (3G) Prerequisites: MAT 271 and 241 with grades of *C* or better. Methods of solving partial differential equations selected from the areas of transform techniques, the finite element method and the classical theory of partial differential equations. An introduction to the calculus of variations.

MAT 376. Numerical Analysis. (3) (3G) Prerequisites: CSC 100, MAT 241 and 271. A treatment of the numerical solution of initial value and boundary value problems in ordinary differential equations. An introduction to the numerical solution of partial differential equations. Direct and iterative methods of solving systems of equations will be developed. Selected problems will be programmed for computer solution.

MAT 380. Topics in Geometry-Topology. (2-3) (2-3G) Prerequisite: Consent of the Department. Topics in geometry and/or topology selected as to supplement regular course offerings in this area of mathematics. Topics may be proposed by students and/or faculty and must be approved by the Department. (May be repeated for additional credit with the approval of the Department.)

MAT 381. Fundamental Concepts of Geometry. (3) (3G) Prerequisites: MAT 264 and consent of the Department. Foundations of geometry, affine geometry, comparison of Euclidean and non-Euclidean geometries.

MAT 383. Intuitive Topology. (3) (3G) Prerequisite: MAT 241. Introduction to combinatorial topology; topology of e^n, winding number and applications; homotopies and the fundamental group.

MAT 391. Seminar. (1-6) (1-6G) Prerequisite: Consent of the department. Readings, study and discussion designed to develop the student's ability to study independently and to present his results properly.

MAT 392. Seminar. (1-6) (1-6G) Prerequisite: Consent of the department. A continuation of MAT 391.

MAT 409. History of Mathematical Thought. (3) (3G) Prerequisite: Consent of the Department. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. Not approved for the M.A. in Mathematics.

MAT 443. Analysis I. (3) (3G) Prerequisite: MAT 341 with a grade of *C* or better or consent of the Department. An introduction to metric spaces, including properties of subsets, continuity of functions, pointwise and uniform convergence of functions.

MAT 444. Analysis II. (3) (3G) Prerequisite: MAT 443. An introduction to Lebesgue integration and measure theory, starting with a construction of measure for closed and bounded intervals of R and extending to an axiomatic treatment of a general measure on abstract spaces.

MAT 450. Selected Topics in Mathematics. (2-3) (2-3G) Prerequisite: Consent of the Department. Topics chosen from such fields as topology, differential geometry, complex anal-

ysis, applied mathematics or modern algebra. May be repeated for credit with the approval of the Department. Not approved for the M.A. in Mathematics.

MAT 463. Modern Algebra I. (3) (3G) Prerequisite: MAT 263 or consent of the Department. The first course in a two-semester sequence covering groups, rings, fields extensions, roots of polynomials and the rudiments of Galois Theory.

MAT 464. Modern Algebra II. (3) (3G) Prerequisite: MAT 463. A continuation of MAT 463. Fields, vector spaces, linear transformations and canonical forms.

MAT 465. Numerical Linear Algebra. (3) (3G) Prerequisite: CSC 100, MAT 264, 271. Direct methods of solving linear systems by Gaussian elimination and triangular decomposition. Matrix and vector norms, condition numbers and accuracy of solutions. Methods for solving the algebraic eigenvalue problem; the power and inverse power methods, reduction to upper Hessenberg form and the QR algorithm. Iterative methods for solving large sparse matrix systems; Jacobi, Gauss-Seidel and successive overrelaxation (SOR) methods. Selected problems will be programmed for computer solution.

MAT 481. Introduction to Topology. (3) (3G) Prerequisite: MAT 383 or 341. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axiom, compactness and connectedness.

MAT 491. Seminar. (1-6) (1-6G) Prerequisite: Consent of the Department. Individual investigation and appropriate exposition of the results. Not approved for the M.A. in Mathematics.

MAT 492. Seminar. (1-6) (1-6G) Prerequisite: Consent of the Department. A continuation of MAT 491. Not approved for the M.A. in Mathematics.

MAT 522. Statistical Techniques. (3) (3G) Prerequisite: Consent of the Department. (Credit toward mathematics major given only to teacher education students.) Probability models, random variables, large sample statistics, inferential statistics. (Credit toward mathematics major not given for both MAT 522 and MAT 322). Not approved for the M.A. in Mathematics.

Courses for Graduate Students Only

MAT 600. Foundations of Mathematics. (3G) Prerequisite: Consent of the Department. Sets, logic and axiomatics with examples drawn from algebra and geometry.

MAT 601. The Number System. (3G) Prerequisite: MAT 600 or consent of the Department. An axiomatic development of the number system from the natural numbers to the complex numbers.

MAT 603. Computer Techniques and Numerical Methods. (3G) Prerequisite: MAT 601 or consent of the Department. A study of digital computer systems, the programming of a digital computer and the use of the computer in the solution of problems by numerical methods.

MAT 604. Topics in Analysis. (3G) Prerequisite: MAT 601 or consent of the Department. A selection of topics forming an axiomatic and rigorous study of analysis including topics such as linear and affine transformation from E to E, differentiation of functions from E to E, integration theory and introduction to abstract spaces. May be repeated for credit.

MAT 606. Modern Algebra. (3G) Prerequisite: Consent of the Department. Topics include groups, finitely generated abelian groups, homomorphisms, Sylow theory, rings and ideals, integral domains, fields and polynomials over commutative rings and fields.

MAT 607. Linear Algebra. (3G) Prerequisite: Consent of the Department. Topics include systems of linear equations, and matrices, vector spaces, linear transformations, determinants, canonical forms of matrices, inner product spaces.

MAT 608. Topics in Geometry-Topology. (3G) Prerequisite: MAT 601 or consent of the Department. A study of selected topics from geometry and topology such as: Euclidean geometry; Non-Euclidean geometry, projective geometry, differential geometry, point-set topology, algebraic topology. May be repeated for credit.

MAT 609. Seminar. (1, 2, or 3G) Prerequisite: Admission to candidacy for M.A. in Mathematics Education. A series of regularly scheduled meetings in which each student will present one or more topics selected by the seminar coordinator. May be repeated for credit.

MAT 720. Probability Theory. (3G) Prerequisites: MAT 341 and either MAT 322 or consent of the Department. Topics include Kolmogorov's axiomatic treatment of probability, probability spaces, probability measures, sigma-algebras, characteristic functions, sequences of random variables, law of large numbers, general forms of the Central Limit Theorem.

MAT 721. Statistics. (3G) Prerequisites: Consent of the Department or MAT 720. A survey course intended to acquaint the student with frequently used statistical techniques. Topics will be selected from: general discussion of estimation theory and hypothesis testing; comparison of parametric and nonparametric techniques in the one and two sample location and dispersion problems; goodness of fit criterion and tests for independence; measures of association; regression techniques; multi-sample inferential techniques, parametric and nonparametric.

MAT 741. Complex Analysis I. (3G) Prerequisite: MAT 346 and MAT 443. A study of holomorphic functions, complex integration, calculus of residues, representation theorems including the Laurent and Mittag-Leffler theorems, analytic continuation, elliptic functions, entire and meromorphic functions, normal families and conformal mapping.

MAT 742. Complex Analysis II. (3G) Prerequisite: MAT 741. A continuation of MAT 741.

MAT 743. Real Analysis I. (3G) Prerequisite: MAT 444. A study of integration and measure theory, including such topics as Lebesgue-Stieltjes integrals, L^p spaces, the Haar integral, the Riesz-Markov representation theorem and the Radon-Nikodym theorem.

MAT 744. Real Analysis II. (3G) Prerequisite: MAT 743. A continuation of MAT 743.

MAT 761. Linear Algebra. (3G) Prerequisite: Consent of the Department. A study of the structure of abstract linear spaces, dual bases, quotient spaces, tensor products and product spaces. A study of linear transformation, including projections, quotient transformations, and tensor products of transformations. A study of inner products and normed linear spaces, with a brief mention of examples such as Banach and Hilbert spaces.

MAT 763. Modern Algebra I. (3G) Prerequisite: MAT 464. A study of the structure of groups, rings and modules. Topics will be selected from: groups with operators, normal series, Jordan-Hölder theorem, products, co-products and Sylow theorems. Module topics selected from: free modules, projective and injective modules, exact sequence, tensor product, exterior algebra, dual modules and modules over principal ideal domains.

MAT 764. Modern Algebra II. (3G) Prerequisite: MAT 763. The structure of fields and commutative rings. Topics will be selected from: transcendental and algebraic field extensions, Galois theory for finite and infinite field extensions. Ring topics selected from: localization of commutative rings, Noetherian rings, primary decomposition, Dedekind domains and discrete valuations.

MAT 771. Methods of Applied Mathematics. (3G) Prerequisites: MAT 271, 371. A selection of topics involving applications of analysis such as variational methods in optimization, linear integral equations, vibration and eigen-value problems, and asymptotic expansions.

MAT 776. Advanced Numerical Analysis. (3G) Prerequisites:MAT 264, 271, 465. A selection of topics from such areas as iterative methods of solving linear and nonlinear systems of equations, approximation theory, splines and finite elements, and finite differences and finite element methods of solving partial differential equations.

MAT 781. Topology I. (3G) Prerequisite: Consent of the Department. A study of topological spaces and continuity. Concepts treated will include connectedness, compactness, and metrizability, and may include further topics in the various branches of topology, i.e., point-set topology, geometric topology and algebraic topology.

MAT 782. Topology II. (3G) Prerequisite: MAT 781. A continuation of MAT 781.

MAT 791. Research Seminar. (3G) Prerequisite: Consent of the Department. A seminar in which independent study may be pursued by the student under the direction of a professor or in which special topics may be studied by a group of students under the direction of a professor.

MAT 792. Research Seminar. (3G) Prerequisite: Consent of the Department. A continuation of MAT 791.

MATHEMATICS EDUCATION

The first digit of each course number indicates the year in which the course is normally taken. The middle digit of each course number indicates the lowest grade level and certificate served, according to the following scheme:

Middle Digit	Lowest Grade Level Served	Certificate
0	0	K-3
4	4	Intermediate
7	7	Secondary

These courses are primarily for students seeking teacher certification, certificate renewal, certificate upgrading or for students in the MHDL program. None of these courses may be applied to a major in mathematics (but may be accepted as non-math electives for the B.A., B.S., or M.A. in Mathematics Education degrees.)

Courses for Undergraduates

MAE 201. Mathematics for the Elementary School Teacher I. (4) An intuitive development of the real number system with emphasis on the principles of teaching and learning elementary mathematics; sets and set operations; systems of numeration; arithmetic operations. Laboratory activities and practical teaching experience in an elementary classroom.

MAE 202. Mathematics for the Elementary School Teacher II. (4) Prerequisite: MAE 201. Mathematical systems; the study of metric and nonmetric geometry; probability and statistics; relations, functions and their graphs. Activities and applications related to elementary and intermediate goals. Practical teaching experience in an intermediate classroom.

Courses for Advanced Undergraduates Available for Graduate Credit in the MHDL Program

MAE 500. Topics in Mathematics Education, Early Childhood. (1-6) (1-6G) Consent of the Department.

MAE 501. Arithmetic in the School. (3) (3G) Prerequisite: MAT 101 or equivalent. A study of the number systems with emphasis placed upon the basic concepts and meanings, properties of addition, multiplication, inverses, systems of numeration and number line appropriate for each grade. (Does not count toward a major in mathematics. Open only

to transfer students who have completed six semester hours of mathematics at another university.

MAE 505. Geometry for Teachers. (3) (3G) Prerequisite: MAE 202 or MAE 501 or consent of the Department. A study of the foundations of Euclidean geometry and a brief treatment of non-Euclidean geometry. Emphasis on learning activities and teaching techniques for teachers of mathematics K-12.

MAE 540. Topics in Mathematics Education, Intermediate. (1-6) (1-6G) Consent of the Department.

MAE 541. Mathematics for the Intermediate School Teacher. (3) (3G) Prerequisites:MAE 202 or consent of the Department. A study of the algebraic properties of the real numbers; functions, equations, inequalities and their graphs, activities and applications related to upper elementary and intermediate grades.

MAE 570. Topics in Mathematics Education, Secondary. (1-6) (1-6G) Consent of the Department.

MAE 571. Mathematics for the Secondary School Teacher. (3) (3G) Prerequisites: MAE 202 or mathematics major with declared option for Secondary School Teacher Certification or consent of the Department. A study of secondary school mathematics and its relation to the curriculum K-12. Strategies, techniques and activities in teaching mathematics.

COMPUTER SCIENCE

Courses for Undergraduates

CSC 100. Algorithmic Languages I. (3) Prerequisite or corequisite: MAT 101 or 103. An introduction to digital computing techniques through the study of FORTRAN IV. Various numerical and non-numerical algorithms will be studied, flowcharted, programmed and documented. Concepts such as computer hardware, computer application areas, etc., will be introduced when appropriate. Four classroom hours per week. Cannot be taken for credit if CSC 101 is taken for credit.

CSC 101. Introduction to Computer Concepts. (3) Prerequisite or corequisite: MAT 101 or 103. Covers the development of the digital computer and its applications. Specific topics include: flow-charting, data representation, card readers, printers, disks, tapes, central processing units, batch processing, time-sharing, recent hardware and software developments and an introduction to programming languages. Cannot be taken for credit if CSC 100 is taken for credit. This course is not the equivalent of CSC 100 as a prerequisite for other computer science courses.

CSC 110. Fortran Programming (1) Prerequisite: CSC 101 or consent of Department. Various numerical and non-numerical algorithms studied, flowcharted, programmed in FORTRAN IV and computer tested. One lecture and one lab hour per week. Cannot be taken for credit if CSC 100 is taken for credit.

CSC 111. Cobol Programming. (1) Prerequisite: CSC 100 or CSC 101 or consent of the Department. Various numerical and non-numerical algorithms studied, flowcharted, programmed in COBOL and computer tested. One lecture and one lab hour per week.

CSC 112. Algol Programming. (1) Prerequisite: CSC 100 or CSC 101 or consent of the Department. Various numerical and non-numerical algorithms studied, flowcharted, programmed in ALGOL and computer tested. One lecture and one lab hour per week.

CSC 113. PL/I Programming. (1) Prerequisite: CSC 100 or CSC 101 or consent of the Department. Various numerical and non-numerical algorithms, studied, flow-charted, programmed in PL/I and computer tested.

CSC 211. Cobol and File Structures. (3) Prerequisite: CSC 100 or equivalent with a grade of *C* or better. A study of COBOL and its use in file manipulations. Covers concepts of field, record, block, sequential access, random access, sorting, merging, updating, etc. Both business and non-business uses of file systems will be derived and machine tested.

CSC 212. A Comparative Study of Programming Languages. (3) Prerequisites: CSC 100 with a grade of *C* or better and knowledge of at least two higher level computer languages. Numeric and non-numeric algorithms in the procedural languages, COBOL, ALGOL, etc.; discussion and comparison of the relative strengths and weaknesses of the various representative programming languages and appropriate areas of application.

CSC 213. Procedure-Oriented Programming in PL/I. (3) Prerequisite: CSC 100 with a grade of *C* or better or consent of the Department. Study of block structure, data elements, stream and record I/O, dynamic program structure and compile time facilities in PL/I. Syntax and semantics of PL/I language included.

CSC 214. Procedure-Oriented Programming In ALGOL. (3) Prerequisite: CSC 100 with a grade of *C* or better or consent of the Department. Study of block structure, data elements, record I/O, dynamic program structure, pointers and job related facilities in ALGOL, Backus-NAUR Form. Syntax and semantics of ALGOL language included.

CSC 223. Introduction to Numerical Methods. (3) Prerequisite: CSC 100 or CSC 110 or CSC 112 and MAT 142. Solutions of equations; interpolation and approximations; numerical differentiation and integration; and numerical solution of initial value problems in differential equations. Selected algorithms will be programmed for the digital computer.

CSC 240. Assembly Language, Machines, Systems. (3) Prerequisite: CSC 100 or equivalent with a grade of *C* or better. Computer structure, addressing techniques, symbolic coding, macros, internal representations and assembly systems.

CSC 241. Systems Programming. (3) A continuation of CSC 240 with a grade of *C* or better. Program segmentation and linkage, loaders, reentrant coding, interrupts and traps, resource allocation, push-down stores and construction of assemblers and input/output routines.

CSC 260. Data Base Design and Implementation. (3) Prerequisite: CSC 100 with a grade of *C* or better and knowledge of at least two computer languages. An introduction to the design of large data files, the implementation of these files in an appropriate programming language and their applications. Emphasis will be on advanced programming techniques with participation in the actual construction of a file system.

CSC 273. Logic and Algorithms. (3) Prerequisite: Sophomore standing. Set algebra; elements of the theory of graphs; Boolean Algebra, propositional logic; and Markov algorithms and Turing machines.

CSC 288. Topics In The History and Literature of Computers — I. (0) Prerequisite: At least two computer languages and consent of the Department.

CSC 289. Topics In The History and Literature Of Computers — II. (1) Prerequisite: Completion of CSC 288 with a grade of AU (Audit). An introduction to searching, assimilating and disseminating historical and technical information in computer science through the study of computer science literature and the written presentation of topics. This is a two-semester sequence with credit awarded only upon successful completion of the second semester (CSC 289).

CSC 311. Advanced Programming Techniques. (3) Prerequisite: Junior standing and at least two high level computer languages. A practicum in the tools and techniques for the construction of efficient programs. Topics to include advanced I/O techniques, sorting and searching, plotted (graphical) output, use of dumps and timing statistics, counting and enumeration, polynomial and matrix operations.

CSC 315. Design and Analysis of Algorithms. (3) Prerequisite: Junior standing and at least two high level computer languages. A study of the tools and techniques for the development of correct algorithms. Topics to include structured and modular programming, efficiency and correctness, testing, recursion, complexity and heuristics.

CSC 341. Computer Organization. (3) Prerequisite: Junior standing, and CSC 240 with a grade of *C* or better. Basic digital components; data representation and transfer; digital storage and accessing; control functions; input/output facilities; machine description, organization, simulation. Survey of various computer architecture.

CSC 343. Advanced Systems Programming. (3) Prerequisite: CSC 341. Batch processing, multiprogramming, multiprocessing and real-time systems. Structure of operating systems, parallel processing of input/output and interrupt handling, information sharing, virtual memory, and virtual machines.

CSC 361. Information Structures. (3) Prerequisite: CSC 240 with a grade of *C* or better and junior standing. Description of a data base and its structure; concepts of records, files, trees and lists; sorting, searching and merging of information files, referencing and cross referencing of files.

CSC 362. Distributed Data Processing and Data Communications. (3) Prerequisite: CSC 240 and at least two high level computer languages. Interface standards and communications protocol; terminal types and features; distributed data processing and network structure-design calculations, multiplexors, concentrators, multidrop lines, polling, circuit switching, message switching and packet switching; error detection and handling; software-network definition languages, message programs, security and applications programming considerations.

CSC 371. Introduction to Sequential Machines, Languages and Automata. (3) Prerequisite: CSC 273. Finite-state deterministic systems; models and basic properties of sequential machines; formal grammars; Chomsky classification of languages and machines; limitations of finite automata; pushdown automata.

CSC 375. Introduction to Theory of Computation. (3) Prerequisite: Junior standing. Recursive functions; Turing machines; Church's thesis; unsolvable problems; computational complexity.

CSC 390. Seminar. (1-6) Prerequisite: CSC 341 or consent of the Department. May be repeated for credit. A continuation of CSC 390.

CSC 391. Seminar. (1-6) Prerequisite: CSC 341 or consent of the Department. May be repeated for credit. A continuation of CSC 390.

CSC 431. Computer Simulation. (3) (3G) Prerequisite: CSC 100, MAT 322, junior standing and consent of the Department. A study of simulation as a tool of computer science or applied mathematics. Introduction of a simulation language such as DYNAMO and GASP and simulation methodology. Topics will include the design of simulation models, discrete and continuous systems and optimization techniques. Selected applications will also be covered.

CSC 450. Senior Project. (3) Prerequisite: Senior standing or consent of the Department. An individual research project under the direction of a faculty member. The project shall have the teaching, theory or application of computer sciences as its main emphasis and shall be of benefit to the Department, University or urban community. The project shall be approved by a departmental committee before it is initiated and the results reviewed by the committee before a grade is assigned.

CSC 451. Senior Project. (3) Prerequisite: CSC 450. A continuation of CSC 450.

CSC 490. Senior Seminar. (1) Prerequisite: Senior/Junior standing and consent of the Department. Each participant will prepare and present a lecture on a topic in computer science. Emphasis will be on communication of technical information skills as well as the content of presentations.

Department of Philosophy

Chairperson: Professor Shumaker
Professor: Fishman
Associate Professors: Lincourt, Presler
Assistant Professors: Gay, Toenjes
Assistant Professor Emeritus: Corkey
Instructor: Croy

A major in philosophy consists of a minimum of 28 semester hours in philosophy and includes courses 201, 205, 311, 313 and two senior seminars. Additional work is to be chosen from other philosophy offerings.

Required related work consists of 15 hours, such work to be chosen in consultation with the department representative or adviser. Students contemplating graduate study in philosophy are encouraged to undertake related work in the natural or physical sciences and to develop reading proficiency in German and French.

COURSE DESCRIPTIONS

PHI 201. Introduction to Philosophy. (3) An introduction to some of the basic concepts and problems of philosophy. Typical problems are freedom and determinism, mind-body interaction, the status of moral judgments and the problem of perception. Readings from the works of representative philosophers both classical and contemporary.

PHI 205. Deductive Logic. (3) A first course in the general principles of deductive logic, both classical and symbolic, with emphasis on the use of formal logic in analysis or ordinary language discourse.

PHI 304. Philosophy of Games. (3) A broadly based and experiential study of the general concept of a game, and of selected specific games. Other relevant concepts; play, sport, competition.

PHI 305. Philosophy In and Of Literature. (3) Prerequisite: PHI 201 or permission of instructor. An investigation of the relationship between philosophy and literature with special emphasis on the nature of literature as it presents concepts and evaluations. Readings will be in the theory of literature as well as in contemporary novels, plays and short stories for both their philosophical and their aesthetic properties.

PHI 311. Ancient Philosophy. (3) Prerequisite: PHI 201 or junior standing. An inquiry into the history of Western intellectual and philosophic thought from the early Greeks to the post-Aristotelian period. Readings from the pre-Socratics, Plato, Aristotle, Epicureans, Stoics, Skeptics and Neoplatonists.

PHI 312. Medieval Philosophy. (3) Prerequisite: PHI 201. An investigation of the Western philosophical tradition from Augustine to William of Ockham. Readings and discussions will cover such other authors as Anselm of Canterbury, Bonaventure, Thomas Aquinas and Duns Scotus.

PHI 313. Modern Philosophy from Descartes to Kant. (3) Prerequisite: PHI 201 or junior standing. An inquiry into the development of modern philosophic and scientific thought. Readings selected from respective works in the seventeenth to the nineteenth centuries.

PHI 314. Contemporary Philosophy. (3) Prerequisite: PHI 201. A study of the main movements and problems of contemporary philosophy; pragmatism, logical positivism, linguistic analysis, existentialism.

PHI 317. American Philosophy. (3) Prerequisite: PHI 201 or junior standing or consent of the instructor. A survey of European philosophic movements which had counterparts in American thought, leading to distinctly American Pragmatism, Realism and Humanism. Readings from contemporary American philosophers.

PHI 321. Ethics. (3) A study of the development of ethical thought in ancient and modern times, with special references to present day ethical problems. Readings selected from classical and contemporary sources.

PHI 323. Existentialism. (3) Prerequisite: Phi 201 or consent of instructor. A study of themes and concepts central to the existentialist tradition of philosophy and literature. Investigations will focus on such issues as: Authority, Absurdity, Death, Anguish, Guilt, Forlorness, Freedom and the Limits of Reason.

PHI 325. Aesthetics. (3) Prerequisite: PHI 201 or junior standing. A study of the major theories of art, including readings from Aristotle, Kant, Nietzsche, Santayana, Collingwood, Croce and Dewey. Emphasis is on the following categories: expression, criticism, the work of art, the creative process.

PHI 326. Social and Political Philosophy. (3) Prerequisite: PHI 201 or permission of instructor. A study of philosophical concepts involved in understanding and evaluating the basic structure of societies (e.g., economic, educational, legal, motivational and political). The concepts studied include equality, fraternity, freedom and rights. Relevance to contemporary social and political issues will be stressed. Readings will usually be from both classical and contemporary sources.

PHI 328. Philosophy and Medicine. (3) Prerequisite: One course in philosophy or permission of instructor. A philosophical analysis of many goals, methods and values in medicine and the other biomedical sciences. With a view to the past as well as the present, readings and discussions will attempt to uncover and evaluate such issues as death, health, sickness, diagnosis and prognosis.

PHI 335. Advanced Logic. (3) Prerequisite: PHI 205. A study of advanced systems of logic, with emphasis upon symbolic logic. The main stress will be placed upon formal systematic characteristics such as axiomatics and proof techniques.

PHI 347. Philosophy of Science. (3) Prerequisite: PHI 201 or 205 or consent of instructor. A philosophical investigation, via critical study and group discussion, of epistemological, methodological, metaphysical, interdisciplinary and meta-disciplinary issues arising out of science. "Science" is here construed very broadly so as to imply a strong connection with all systematic inquiry, either past or present, into natural or social questions.

PHI 350. Topics. (3) May be repeated for additional credit with the approval of the department. Prerequisite: Consent of the Department. Topics chosen from specific areas in philosophy such as symbolic logic. philosophy of science, freedom and determinism, philosophy in literature, detailed study of significant philosophic movements or detailed study of the works of individual philosophers.

PHI 360. Major Figure in Philosophy. (3) Prerequisite: Consent of instructor. An in-depth investigation into the thoughts and writings of a major figure in philosophy. Special emphasis will be on primary resources. Included will be 360A — Plato, 360B — Aristotle, 360C — Descartes, 360D — Kant, and others as necessitated by departmental needs and interests.

PHI 365. Theory of Knowledge. (3) Prerequisite: PHI 201. An analysis of the concepts of meaning, belief, knowledge, truth and discussion of the analytic-synthetic distinction. Readings from historical and contemporary sources.

PHI 375. Metaphysics. (3) Prerequisite: PHI 201. An investigation of the history of metaphysics, focusing on the concept of experience. Authors to be discussed include Aristotle, Hume, Lewis, Hegel, James, Peirce, Dewey and Whitehead.

PHI 401. Philosophy of Religion. (3) Prerequisite: PHI 201 and junior standing. A discussion of the philosophical implications of religious experience. The definitions, development and diverse forms of the problems of belief and reason in modern thought.

PHI 402. Philosophy of the East. (3) Prerequisite: Six hours of philosophy. A survey of thought in the East from ancient to modern times. Special emphasis on the philosophical concepts of Hinduism, Buddhism, Confucianism and Taoism.

PHI 445. Philosophy of Mind. (3) Prerequisite: PHI 201. A study of the conceptual issues in the mind body problem and the problem of other minds. Analysis of concepts of intention, motivation, consciousness, imagination and emotion.

PHI 491. Seminar. (2) Prerequisite: Consent of the Department. Individual or group inquiry into selected philosophic problems. Exposition and discussion of the results.

PHI 492. Seminar. (2) Prerequisite: Consent of the Department. A continuation of PHI 491.

Department of Physics

Chairperson: Associate Professor Oberhofer
Professors: Pollak, Vermillion, Werntz
Associate Professors: Corwin, Mayes, Melton
Lecturers: Schuster, Spratlin

B.A. IN PHYSICS

A major in physics leading to the B.A. degree consists of a minimum of 120 semester hours which fulfill the general degree requirements of the University. A minimum of 26 semester hours in physics with an average grade of C in the major area is required. The minimum of 26 hours must include Physics 221, 222, 231, 241, 251, 252, 291, 391, 491 and at least nine additional hours at the 300/400 level.

B.S. IN PHYSICS

A major in physics leading to the B.S. degree consists of a minimum of 120 semester hours which fulfill the general degree requirements of the University. A minimum of 36 semester hours in physics with an average grade of C in the major area is required. The minimum 36 hours must include Physics 221, 222, 231, 241, 251, 252, 291, 321, 331, 341, 391, 491, four hours to be selected from 351, 361, 371 and 451 with a maximum of two hours credit in 451; and at least six additional hours at the 300/400 level to be approved by the Department.

For either program a first year sequence of Physics 101 and 102, or Chemistry 101 and 102 is recommended. Students should note that Mathematics 141, 142, 241, 271 or their equivalents are prerequisites for various required physics courses. Freshmen should arrange their mathematics schedule so as to complete Math 141 before beginning their sophomore year.

COURSE DESCRIPTIONS

ASTRONOMY

Courses for Undergraduates

PHY 103. Introduction to Astronomy. (3) Historical beginnings of astronomy. Motions of celestial bodies. Introduction to space science. The solar system. Optical and radio astronomy. Structure and evolution of stars. Galaxies, cosmology. Three lecture hours each week. If taken together with 103L, the combination can be counted toward the general degree requirements in natural science.

PHY 103L. Introduction to Astronomy Laboratory. (1) Prerequisite or corequisite: PHY 103. Experimental investigations relating to the acquisition of and interpretation of astronomical data. One three-hour laboratory each week.

PHYSICS

PHY 101. Introductory Physics I. (4) Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments in order to illustrate the logical structure of modern science. Three lecture and three laboratory hours each week.

PHY 102. Introductory Physics II. (4) Prerequisite: PHY 101. A continuation of PHY 101. Three lecture and three laboratory hours each week.

PHY 105. Basic Concepts and Teaching Methods in Physical Science. (4) Intended primarily for students in teacher education. Content, process and attitude of science are explored, along with methods for teaching science to children. Topics include basic scientific concepts such as energy, interaction, relativity of motion, scientific model, as well as teaching strategies and their relationship to theories of learning and development, such as Piaget's theory. May not be counted toward the eight-hour general degree requirement in natural science. Six laboratory/class hours per week.

PHY 141. Modern Physics for Non-Science Students. (3) Treatment of physical theories developed since 1900. Topics include relativity, quantum physics, nuclear physics and elementary particles. Historical and philosophical aspects are stressed throughout the course. Three lecture hours a week.

PHY 190. Seminar I. (0) Students attend scheduled programs of scientific talks by faculty, students and/or visiting speakers. Films illustrating physics principles, recent developments or the broad historic and cultural relationship of science and society will be viewed. Regular attendance is required. Normally meets once every other week for up to two hours.

PHY 221. Dynamics. (3) Prerequisite: MAT 141. Kinematics and dynamics of particles; momentum, work, energy; conservation laws, mechanics of rigid bodies. Three lecture hours a week.

PHY 222. Waves and Thermal Physics. (3) Prerequisites: PHY 221 or ESM 241; MAT 142. Fluid mechanics and elastic properties of matter; oscillations and waves in elastic media; sound; heat and an introduction to thermodynamics and the kinetic theory of gases. Three lecture hours a week.

PHY 231. Electricity and Magnetism. (3) Prerequisites: PHY 221 or 222; MAT 142. Electric and magnetic fields in free space and in matter; electrostatic potential and capacitance; elementary circuit theory; electromagnetic induction and inductance; introduction to Maxwell's equations. Three lecture hours a week.

PHY 241. Introduction to Modern Physics. (3) Prerequisites: PHY 102 or PHY 231; MAT 120 or MAT 141. An introduction to such topics as the atomic structure of matter, quantum physics, electronic structure of atoms, wave nature of matter, physics of the solid state, nuclear structure, radioactive decay, fission and fusion, and special relativity. Three lecture hours a week.

PHY 251. Experimental Physics I. (1) Corequisite: PHY 221. The first course of a laboratory sequence developing toward open-ended experiments designed to illustrate physical principles, to develop experimental technique and to encourage individual investigation by the student. PHY 251 involves chiefly experiments in classical mechanics. One three-hour laboratory each week.

PHY 252. Experimental Physics II. (1) Prerequisite: PHY 251. Corequisite: PHY 231. Experiments in electricity and magnetism. One three-hour laboratory each week.

PHY 291. Seminar II. (1) Prerequisite: PHY 190. An introduction to techniques of scientific inquiry and communication. The formulation of simple scientific questions. The attack of real problems by construction of elementary models using assumptions, estimates and preliminary calculations. The use of reference material and modes of presentation of a scientific talk. One class hour per week.

Courses for Advanced Undergraduates (and Graduates as Designated)

PHY 311. A.C. Circuits and Electronics. (4) Prerequisites: PHY 231 and PHY 252. An introduction to A.C. circuit theory and electronics and an emphasis on the function and behavior of the individual components of an electronic circuit. Two hours of lecture and one three-hour laboratory each week.

PHY 321. Classical Mechanics I. (3) (3G) Prerequisites: PHY 221; MAT 241 and 271. The first course of a two-semester sequence treating particle dynamics, the motion of systems of particles, rigid body motion, moving coordinate systems. Lagrange's equations, Hamilton's equations and small oscillations. Three lecture hours a week.

PHY 331. Electromagnetic Theory I. (3) (3G) Prerequisites: PHY 231; MAT 241 and 271. The first course of a two-semester sequence. Topics considered include electrostatics and magnetostatics in free space and in matter, the motion of charged particles in electric and magnetic fields, capacitance, dielectric theory, field energy, electromagnetic induction and inductance, vector and scalar potentials, magnetic properties of matter. Maxwell's equations, solutions of Maxwell's equations in free space and in matter, propagating electromagnetic waves, and boundary value problems. Three lecture hours a week.

PHY 341. Quantum Physics I. (3) (3G) Prerequisites: PHY 231 and 241, MAT 241 and 271, or consent of the department. Empirical necessity for quantum physics. Postulates of quantum physics. Analytical study of quantum physics of the atom. Three lecture hours a week.

PHY 345. Statistical Physics. (3) (3G) Prerequisites: PHY 231 and 241, or consent of the department. Introduction to the microscopic foundations for macroscopic systems. Kinetic theory and introductory statistical mechanics. Three lecture hours a week.

PHY 351. Advanced Laboratory in Waves and Optics. (2) Prerequisite: PHY 252. Selected laboratory work primarily in geometrical optics, physical optics and microwaves. Three hours of laboratory each week.

PHY 361. Advanced Laboratory in Modern Physics. (2) Prerequisites: PHY 241 and PHY 252, or PHY 241 and consent of Department. Selected laboratory work in such areas as atomic spectra, radioactive decay and the interaction of radiation with matter. Three hours of laboratory each week.

PHY 371. Advanced Laboratory in Mechanics. (2) Prerequisite: PHY 252. Selected laboratory work in the area of classical mechanics. Topics are chosen for their relation to important principles and techniques or for their historical significance. Three hours of laboratory each week.

PHY 391. Seminar III. (1) Prerequisite: PHY 291. Same as PHY 190 except the student will normally be required either to submit a term paper or to give an oral presentation of an independent investigation at one of the scheduled programs.

PHY 395. Topics in Physics. (0-4 semester hours credit. May be repeated with approval of the Department) Prerequisite: Consent of the Department. Used to comply with requests for special topics which are introductory in nature.

PHY 397. Internship in Community Education and Service. (3) Prerequisite: Junior standing, acceptance into the internship program and approval by the Physics Department. Corequisite: SBS 398. A project oriented, service-learning internship with cooperating community organizations. Credit toward departmental requirements in physics will not be granted for this course. May be repeated once with permission of the Physics Department. This course is offered on a pass/no-credit basis.

PHY 411. Nuclear Physics. (3) (3G) Prerequisite: PHY 231 and 241, and MAT 271. A study of the nucleus, radioactivity, nuclear reactions, fission, fusion interactions of radiation with matter and measurement of radiation. Three hours lecture per week.

PHY 421. Classical Mechanics II. (3) (3G) Prerequisite: PHY 321. Continuation of PHY 321. Three lecture hours a week.

PHY 431. Electromagnetic Theory II. (3) (3G) Prerequisite: PHY 331. Continuation of PHY 331. Three lecture hours a week.

PHY 441. Quantum Physics II. (3) (3G) Prerequisite: PHY 341. Continuation of PHY 341 with selected applications from atomic, molecular, solid state and nuclear physics. Three lecture hours a week.

PHY 451. Investigations. (1-4) (1-4G) Prerequisite: Junior standing and consent of Department. An independent investigation by the student on an appropriate topic. Both a written and an oral presentation of the results of the investigation will be required.

PHY 491. Seminar IV. (1) Prerequisite: PHY 391. A continuation of PHY 391.

PHY 495. Selected Topics in Physics. (0-4) (0-4-G) semester hours credit. May be repeated with approval of the Department.) Prerequisite: Consent of the Department. Used to comply with requests for more advanced special topics.

Department of Political Science

Chairperson: Associate Professor Mundt
Professor Emeritus: Winningham
Professors: Jamgotch, Lyons
Associate Professors: Arrington, Backman, Brenner, Dorin, Fleitas, McCoy, Mead
Assistant Professors: Chernotsky, Loewy, Rhodes
Lecturers: Friedman, Higgins
Adjunct Professor: Burkhalter

B.A. IN POLITICAL SCIENCE

A major in political science for the B.A. degree requires: (1) 30 semester hours of political science to include at least two courses from the subfield of American Politics (including Public Administration), one course in the subfield of Comparative Politics, one course in the subfield of International Relations, PSC 391 (Research Methods), PSC 391L (Research Methods Lab), and PSC 490 (Senior Project), and (2) 18 semester hours of course work in no more than two of the following disciplines: accounting, anthropology, business, Afro-American and African studies; computer science, criminal justice, economics, geography, history, mathematics, philosophy, psychology and sociology. All 18 hours may be taken in a single discipline — for example, sociology or history; or, any other combination may be used, such as 12 hours in sociology and six hours in psychology. With an adviser's approval, a student may elect to do 18 hours of related work on an interdisciplinary topic. No more than nine hours of credit from PSC 399 (Practicum in Applied Political Science), PSC 400 (Independent Study) and/or PSC 480 (Internship in Political Science) can be offered to fulfill major requirements for a political science major.

Students may opt to receive the bachelor of arts in political science with a concentration in international studies. A concentration in international studies shall include at least 18 hours (of a total of 30) in courses listed in the *Catalog* under international relations, comparative politics and area studies. Majors are encouraged to diversify their course work in international studies by taking 24 hours in at least three of the following fields: anthropology, comparative literature, comparative sociology, comparative religions, geography, international business, economics and trade, modern foreign language and 19th and 20th century history. (The fulfillment of this requirement satisfies the department's general related work requirement.)

The offerings, including introductory courses, are divided into the following major subfields: American Politics, Comparative Politics and Area Studies, International Relations, Political Theory, Public Administration and Research in Political Science.

MASTER OF URBAN ADMINISTRATION

The primary objective of the master of urban administration degree program is to provide a curriculum which offers professional training in public administration with a special emphasis on the management of local government systems. The curriculum emphasizes the analysis of the urban environment as well as the administrative decision-making approaches of urban administration.

Program Design. The master of urban administration program is structured into three distinct phases: (1) Core; (2) Functional Specialization; and (3) Directed Study. In all, the program requires 36 hours of graduate credit for completion of the degree.

Core: All students are required to complete courses in each of the three core areas; (a) Survey of the Urban Environment; (b) Theory and Practice of Urban Administration; and (c) Administrative Analysis. The emphasis in the core area phase is twofold: achieving an overall perspective on the problems of urban administration *and* comprehending the various managerial and analytical approaches salient to the local governmental environment.

After completion of the core requirements and before enrolling for an additional nine hours, each student must successfully complete a comprehensive examination before continuing work toward the degree.

Functional Specialization: In this phase students are required to take courses in two or three areas of functional specialization: Budgeting and Economic Analysis; Personnel Management; or Information Systems and Program Evaluation. The selection of the courses is determined by the career needs of individual students.

Directed Study: Each master's degree candidate is expected to complete a project on a topic of significance based on a field experience in urban administration. This requirement can be satisfied by individual experience gained through professional involvement in public administration or experience obtained through an approved internship with a governmental unit. This phase of the program is completed with a comprehensive exam.

Program Instruction and Scheduling. The methods of instruction employed in the program are designed to expose students to a variety of approaches to urban management. These methods include simulations, role playing, problem analysis, lectures and case studies. The ability to analyze complex managerial problems can be developed only by combining theoretical principles and practical administrative experience. The instructional program is designed to expose the student to both principles and experience.

Students may enroll in the master of urban administration program on either a full-time or part-time basis. Classes are scheduled in the evening throughout the year. Full-time students may carry more than a normal course load (see pages 62-63) only with the permission of their advisers.

COURSE DESCRIPTIONS

AMERICAN POLITICS

Courses for Undergraduates

PSC 110. Introduction to American Politics. (3) Role of the President, Congress, Supreme Court and national administrative agencies in the American political system. Relationship between the American people and their political institutions with emphasis upon political culture, the electoral process, political parties, interest groups and political communication.

Courses for Advanced Undergraduates (and Graduates as Designated)

PSC 301. Political Socialization. (3) (3G) The study of the processes by which the political culture of the society is transmitted, formally and informally, to individual members. The course examines the learning process, the agents of socialization, the content of the learning and the consequences of political socialization for the functioning of the political system.

PSC 303. Public Opinion and the Mass Media. (3) (3G) The nature and influence of public opinion and the effects of the news media on public opinion and political behavior. The course emphasizes research on the development and content of public opinion and social psychological studies on the process of opinion change.

PSC 305. Voting and Elections (3) (3G) An examination of the psychological, sociological and political variables that influence voting behavior and that affect electoral stability and change. The course emphasizes studies derived from survey research.

PSC 307. Ethnic Politics. (3) (3G) The role of racial, religious and nationality groups in American politics.

PSC 309. Political Parties and Interest Groups (3) Analysis of the role played by political parties and interest groups in the American political system.

PSC 311. The Congress. (3) (3G) Analysis of the role of the Congress in the American political system and its relationships with the other branches of government. The course includes study of the recruitment and socialization of congressmen, the committee system and roll call analysis.

PSC 312. The Presidency. (3) (3G) Analysis of the role of the Presidency in the American political system and its relationships with the other branches of government. The course includes study of the strategies of presidential nomination and election, the sources and indicators of presidential power, how those who have held the office have shaped it and been shaped by it.

PSC 313. Judicial Decision Making. (3) (3G) Survey of the empirical studies concerning the determinants of the behavior of judges.

PSC 314. American Constitutional Law. (3) (3G) Examines the development of American constitutionalism, with a major emphasis on the roles played by the Supreme Court in the emergence of the American political system. Studies the justices as intellectual personalities engaged in the formulation of national policies. Utilizes Supreme Court decisions and opinions, histories, biographies and political science analyses to study the evolution of governmental powers and individual rights from colonial America through the end of the Roosevelt Court or Stone Court in 1946.

PSC 315. Civil Rights and Liberties. (3) (3G) An analysis of Supreme Court decisions relating to civil rights and liberties.

PSC 316. Judicial Process. (3) Analysis of the structure and functions of federal and state courts in the context of the American political system. Emphasis upon the roles of judges, juries, counsel, litigants, police, interest groups and other actors in the adjudication processes.

PSC 317. Politics of Criminal Law. (3) (3G) This course studies the politics of the Supreme Court interactions with the Congress, Presidency, Justice Department and the states in the formulation of policies related to the criminal law.

PSC 318. Law and Social Change. (3) (3G) Examines the relationship between law and social change. Places particular emphasis upon the strengths and weaknesses of courts in bringing about social changes.

PSC 319. State Politics. (3) Comparative analysis of the 50 states, utilizing socio-economic characteristics, structural traits and policy outputs as the primary variables of interest.

PSC 320. Politics of the South. (3) This course seeks to describe and analyze selected political patterns and recent trends within the 11 states of the Southern United States. The objective of the course is to acquaint the student with basic elements of continuity and change which characterize southern politics.

PSC 321. Urban Politics. (3) (3G) Analysis of the political process in the nation's metropolitan areas and the adjustments and responses of the U.S. governmental system in attempting to cope with the urban area.

PSC 322. Contemporary Urban Problems. (3) (3G) A study of selected urban problems, including an analysis of the causes and consequences of governmental policies designed to cope with these problems. Topics of interest would include: crime and law enforcement, poverty and welfare, urban transportation, education, pollution, housing and redevelopment, and urban revenue and expenditure patterns.

PSC 323. Women and Politics. (3) An examination of the political roles played by women as elected officials, bureaucrats and appointed board members. Focuses on the recruitment, activities and special problems of women in politics.

COMPARATIVE POLITICS AND AREA STUDIES

Courses for Undergraduates

PSC 130. Politics in Foreign Nations. (3) Political comparisons among nations. Diverse geographical emphases, including some of the following: Latin America, the Atlantic communities of the West, Central and Eastern Europe, the Middle East, Africa, Central Asia, East Asia and Southeast Asia.

Courses for Advanced Undergraduates (and Graduates as Designated)

PSC 331. The Nature of Political Change. (3) (3G) Comparative study of political change with reference to problems of reform, revolution and nation-building.

PSC 335. Political Violence. (3) This course is designed to address four questions: (1) What is political violence? (2) Why does it occur? (3) What is its relationship to other political processes? (4) What is its impact on society? The emphasis of this course, while drawing on examples from contemporary American and foreign scenes, is on examining manifestations of violent political behavior such as pathological violence, conspiratorial violence, collective violence and governmental violence.

PSC 336. Comparative Urban Politics. (3) (3G) Urban growth, urban problems and political response in cross-national perspective. Focus on the urban policy process including political explanations for variations in national urban growth and urban structure. Attention to selected case and comparative studies on the U.S., Europe, Latin America, Africa and Asia.

PSC 337. Political Corruption. (3) The use of public office for private ends in the United States and in comparative perspective.

PSC 341. Government and Politics of Western Europe. (3) Comparative analysis of selected West European governments including Great Britain, France, Germany and Italy.

PSC 343. African Politics. (3) (3G) A comparative perspective on the politics of independence in sub-Saharan Africa and on the performance of the new political systems there in terms of national and international integration and the modernization of traditional societies and economies.

PSC 345. Government and Politics of the Soviet Union. (3) (3G) The origins of Bolshevism and the substance and role of Marxist-Leninist ideology. The structure and functions of the Communist Party of the Soviet Union (CPSU). The principles of Soviet politics and the instruments of rule. The Soviet political system in transition and its relationship to world communism.

PSC 346. Communist Politics in Comparison. (3) Studies the most dynamic features of communist public order systems including the Soviet Union, Poland, Czechoslovakia, Hungary, Yugoslavia, Cuba and the People's Republic of China. Compares ideologies, party leaderships, youth movements, interest groups, political dissent and the politics of human mobilization and national development.

PSC 347. Government and Politics of Latin America. (3) Comparative study of the political development of Latin American political systems with reference to selected aspects and problems of contemporary politics in the region.

PSC 348. Politics in the People's Republic of China. (3) Revolution, ideology and organization in communist China. The origins, development and maintenance of the Chinese political system. Cross-national comparison with other communist and mobilization systems.

PSC 349. Government and Politics of Asia — Democratic Systems. (3) Political behavior and the growth of democratic political institutions in selected Asian states, particularly Japan. Emphasis on the nature of political change and political process — political participation and recruitment, political socialization, party systems and voting behavior, policy formation. Cross-national comparison with non-Asian democratic systems.

Courses for Undergraduates

PSC 150. Introduction to International Politics. (3) Analysis of politics among nations: material and psychological sources of national power, the role of law, force and diplomacy in world politics, problems of peace and disarmament, and international organization.

PSC 150L. Introduction to International Politics Laboratory. (1) (Simulation Section) The laboratory experience will address itself to the simulation of a complex phenomenon known as "international behavior." One laboratory period of two hours per week.

Courses for Advanced Undergraduates (and Graduates as Designated)

PSC 351. International Political Economy. (3) This course examines the political dynamics of economic relationships among industrially advanced nations. Attention is focused on the political aspects of monetary, trade, and investment relationships and the political difficulties involved in coordinating policy and maintaining effective international management.

PSC 352. Politics of Development. (3) This course examines the political factors underlying the economic relations between developed and developing nations. Attention is focused on the political forces shaping global negotiations for political and economic reform, the proposals of developing nations for the creation of a new international development strategy, and the responses of developed nations to these proposals.

PSC 353. Political Foundations of International Order. (3) The structure, processes and problems of general and regional international organizations, and the origins and contemporary role of international law.

PSC 354. Investment in Human Survival. (3) Investigation of the major challenges to human survival posed by population excess, food shortages, resource depletion, ecological abuse, social injustice and the arms race. Contributions from various academic fields are drawn together for political analysis and a design of world futures to elevate the quality of life.

PSC 357. American Foreign Policy. (3) (3G) The evolution of U.S. national security interests and contemporary decision-making. Explores both domestic resources and international determinants of foreign policy, and emphasizes strategic and tactical responses to the critical global problems of our time.

PSC 357L. American Foreign Policy Laboratory. (1) (1G) The laboratory experience will allow students to simulate the decision-making process of the United States government in the solution of key foreign policy issues. One laboratory period of two hours per week.

PSC 359. Soviet Foreign Policy. (3) (3G) The concepts, content and evolution of Soviet foreign relations, with emphasis upon change and continuity in Russian and Soviet policies. Contemporary problems of Soviet diplomacy with other world powers and with the Marxist-Leninist nations of the Communist international system.

PSC 360. Comparative Foreign Policies. (3) Comparative analysis of the foreign policies of both large and small nation-states. This course, with the use of comparative approaches, focuses on the major variables within and outside contemporary states that influence the nature of their foreign policies. Of particular importance will be the examination of both variables on foreign policy under specifiable conditions and the policy-making apparatus of each state.

PSC 361. Problems of Defense and National Security Policy. (3) Investigates major concepts of war and the problems of arms control, escalation and the proliferation of nuclear weapons. Examines trends and conditions of international conflict, technological change and domestic political environments as they relate to defense and national security.

PSC 362. International Law. (3) An historical and political analysis of the sources and development of international law. Particular attention is given to the role of modern international law in the relations of nation-states and its application to contemporary global problems.

PSC 365. East Asia in World Affairs. (3) An examination of the basic factors governing East Asia's role in world affairs, both traditionally and in the present day.

PSC 469. Theories of International Politics. (3) Prerequisites: PSC 130 or 150 and consent of the instructor. Survey of major theories in the field, with emphasis on contemporary, empirically based approaches of theory building. The focus of the course will include a range of theories from a variety of disciplines which attempt to explain the phenomena of politics in international and transnational contexts.

POLITICAL THEORY

PSC 371. History of Classical Political Thought. (3) Major concepts and systems of political thought from Plato to the seventeenth century.

PSC 373. History of Modern Political Thought. (3) Major concepts and systems of political thought from the seventeenth century to the present.

PSC 374. Contemporary Systematic Political Theory. (3) A review of the major theorists who present a comprehensive and systematic analysis, evaluation or prescription of politics. Both normative and empirical approaches will be used in studying twentieth century democratic theory, systems analysis, group theory, power concepts and neo-Marxian and conservative ideologies.

PSC 375. Law, Justice and Morality. (3) (3G) An analysis of such law-related issues as justification for criminal punishment, the obligation to obey the law, the enforcement of morals and war and morality.

PUBLIC ADMINISTRATION

PSC 383. Administrative Behavior. (3) (3G) The role of the administrator and public bureaucracy in modern democratic society. Particular attention will be given to the interplay of forces created by executives, legislators, political parties and interest groups.

PSC 384. Decision Making in Public Administration. (3) (3G) An examination of the major schools of decision making theory: rationalism, incrementalism and mixed-scanning. The use of these approaches in public administration in areas of budgeting, organization and program design, and personnel will be studied, using problem sets and simulation techniques.

PSC 386. Politics of Planning. (3) An examination of the governmental planning process with an emphasis on the land-use and growth management systems of urban areas. The processes and impacts of local, regional, state and federal planning will be discussed.

PSC 387. Urban Administration. (3) (3G) A study of administration in the context of the urban setting. Attention will be given to urban governmental bureaucracies, their response to and interaction with their environments, and their roles in developing urban policy.

RESEARCH IN POLITICAL SCIENCE

PSC 390. Political Measurement. (4) An introduction to the use of quantitative techniques in the analysis of political data. The course emphasizes the understanding of measurement concepts and introduces the student to practical applications in working with quantitative data.

PSC 390L. Political Measurement Laboratory. (0) One two-hour laboratory period per week. The laboratory is required for successful completion of PSC 390 and is to be taken concurrently with PSC 390. The laboratory is open only to students who are enrolled in PSC 390.

PSC 391. Research Methods in Political Science. (4) An introduction to research methods in political science to include a brief consideration of the following topics: philosophy of science literature; the place of research methods in the discipline of political science; research design; research strategies and techniques; data interpretation.

PSC 391L. Research Methods Laboratory. (0) One two-hour laboratory period per week. The laboratory is required for successful completion of PSC 391 and is to be taken concurrently with PSC 391. The laboratory is open only to students who are enrolled in PSC 391.

PSC 392. Introduction to Survey Research. (3) (3G) An examination of the purposes, logic and procedure of survey research in the study of political attitudes and behavior. The major steps in survey research — planning, sampling, questionnaire design, data collection, processing data and analysis — will be reviewed. The student will have an opportunity to apply newly acquired skills in a field situation.

PSC 490. Senior Project. (3) Prerequisite: PSC 391. The student completes an article length research paper or other project under the direct supervision of a member of the faculty. The paper or project must involve quantitative or other methods of modern political analysis. In seminar fashion the students and a faculty member will meet to discuss and criticize the senior projects.

TOPICS IN POLITICAL SCIENCE

PSC 300. Selected Topics in Political Science. (1-4) An intensive study of a political topic. The particular topic investigated may vary from semester to semester, and a student may take more than one course under this number.

PSC 399. Practicum in Applied Political Science. (1-3) (1-3G) Prerequisite: Permission of the instructor. This course provides students with the opportunity to apply political science concepts in a simulated (real-world) setting under the supervision of a faculty member. (May be repeated for credit with departmental permission.)

PSC 400. Independent Study. (1-3) Prerequisite: Consent of the instructor. Supervised investigation of a political problem that is (1) of special interest to the student; (2) within the area of the instructor's special competence; and (3) normally an extension of previous course work with the instructor. A student may take more than one course under this number but may not enroll for more than three hours in any particular semester.

PSC 480. Internship in Political Science. (3-6) The student receives a practical experience in politics by working for a party, campaign organization, political office holder, news media, government agency or other political organization. Minimum of 150 working hours for three hours credit; minimum of 300 working hours for six hours credit. No more than six credits may be received by any student through this course.

PSC 495. Honors Seminar. (4) Prerequisite: Approval by departmental Honors Committee. An intensive study of a selected topic in political science, designed to challenge and develop the intellectual ability of the participants.

PSC 496. Honors Thesis. (4) Prerequisite: Approval by the departmental Honors Committee and completion of PSC 495 with a grade of *A*. Research and writing of an honors thesis.

Courses for Graduate Students Only

PSC 600. Topics for Graduate Study in Political Science. (1-4G) Prerequisite: Graduate standing. An intensive graduate-level study of a political topic. The particular topic investigated may vary from semester to semester, and a graduate may take more than one course under this number.

PSC 601. Seminar in Urban Politics. (3G) Competing models of urban politics are considered in the context of the political and socioeconomic development of the city as well as from the perspective of the city as a unit in a complex federal system. Attempts to define the roles of various individuals, officials and groups in urban politics.

PSC 602. Seminar on Urban Problems and Public Policy. (3G) Examination of substantive problems facing actors in the urban political system and exploration of alternatives to deal with them. Topics may include: urban revenues and expenditures, housing and redevelopment, poverty and human services, crime and law enforcement, environmental protection and public education.

PSC 610. Quantitative Research Methods in Urban Administration. (3G) Introduction to the use of quantitative analysis in administration. Special emphasis on issues of research design, data collection, elementary statistical analysis, and the interpretation and presentation of research findings.

PSC 611. Information Systems in Urban Administration. (3G) A discussion of the nature of information systems in urban administration. Particular attention to developing understanding of administrative control and use of technology, and the processes, policies and issues associated with urban information systems.

PSC 613. Organization Theory and Human Behavior in Public Organizations. (3G) Changing images of people, organizations and organizational environments; research findings and applications related to motivation, leadership, communications, decision-making, group dynamics, interpersonal skills, group problem solving skills; ethics and values.

PSC 614. Changing the Public Organization. (3G) Overview of concepts and methodologies of organization development; diagnosing organizational needs, change strategies and interventions.

PSC 620. Public Values and Urban Administration. (3G) Prerequisite: Completion of two courses in the MUA program or permission of the instructor. Normative and value considerations important for the study and practice of public administration, ethical systems, an assessment of value systems and the impact of competing value systems on public policy making.

PSC 622. Law and Urban Policy. (3G) Role of the judicial process in shaping urban policy in the field of urban administration and the role of administrative law in influencing behavior of urban policy organizations.

PSC 627. Introduction to Urban Administration. (3G) An introduction to the basic literature of public administration and consideration of theoretical questions of administration as an independent field of study and practice, particularly as applied to an urban setting.

PSC 630. Public Budgeting. (3G) An overview of public budgeting theory and practice including budgeting concepts and practices in federal, state and local government settings. History and public budgeting, phases of the budget cycle, executive-legislative relations, and budgetary reform efforts will be covered.

PSC 632. Public Personnel Management. (3G) Study of the context of public personnel administration; basic functions of job evaluation and compensation, employee rights and responsibilities; the legal constraints including equal opportunity, health and safety, collective bargaining; government productivity.

PSC 634. Urban Financial Management. (3G) Introduction to and analysis of theory and practice of financial management in public organizations, with emphasis on urban governments. Comparison and contrast between public and private sector fiscal practices. Topics will include patterns of taxation, capital budgeting, accounting and auditing, case and debt management, municipal bonding and public sector pension policy.

PSC 639. Advanced Seminar in Public Management Problem Solving. (3G) Seminar viewed as a capstone to the student's course work in public management and is required to be taken by all students. Seminar devoted to topics in public management which involve problem identification and solution.

PSC 640. Conflict Management in Public Organization. (3G) The role of the administrator as a focal point in social change and the management of the conflict which occurs. Perspectives on the negotiation and bargaining process will be reviewed.

PSC 641. Labor Management Relations in Government. (3G) Public employee unionization, collective bargaining, unit determination and recognition; negotiation; third-party processes; administration of agreements.

PSC 650. Policy Analysis. (3G) Analysis of the policy making process, with particular attention to urban policy making. Development and application of policy analysis methods.

PSC 655. Seminar in Public Program Evaluation. (3G) Exploration of the problems of and prospects for evaluating the efficiency, effectiveness and impact of public programs, reviews evaluative research designs and measurement problems, and the attempts to integrate the evaluation function with the planning and budgetary processes.

PSC 685. Urban Intergovernmental Relations. (3G) Survey of the complex relationships of governments in an urban environment set in the federal system. A review of the problems created by that system and the approaches to their solutions.

PSC 690-691. Directed Study/Internship in Applied Urban Administration. (6G) Individual project report on a directed topic of significance based on field experience in urban administration. *Pass-No Credit grading.*

PSC 695. Robert A. Taft Institute of Government. (3G) Open under special arrangement. *Pass/No Credit* grading.

Department of Psychology

Chairperson: Professor Grimsley
Professors: Diamant, Simono
Associate Professors: Calhoun, Cann, Fernald, Gilmore, Goolkasian, Lamal, Long, Maisto, Selby, Sohn, Toner, Wachowiak
Assistant Professors: Park, Puglisi, Siegfried, Tedeschi, Terry, Wetherington, Windholz
Lecturers: Bumgardner, Cook, Lyons

B.A. IN PSYCHOLOGY

A major is psychology leading to the B.A. degree consists of 29 hours of psychology. These hours must include General Psychology (101 and 101L), Research Methodology (241 and 241L), History and Systems (461), a senior seminar (491, 492, 493, 494, 495, 496, 497, or 498), and two courses from each of the following lists:

Experimental Options	Developmental/Social/Applied Options
Introduction to Behavior Modification (296)	Child or Adolescent Psychology (220, 230)
Comparative Psychology (310)	Adjustment or Abnormal Psychology (203, 307)
Psychology of Learning (311)	Industrial/Organizational Psychology (271)
Motivation (312)	Basic Processes in Psychological Assessment (301)
Sensation and Perception (313)	Social Psychology (303)
Human Cognitive Processes (430)	Psychology of Personality (305)
Physiological Psychology (451)	

Other course requirements for majors are MAT 122 (Elements of Statistics), two courses from the subject area of biology, chemistry, earth science or physics and six hours of social science exclusive of psychology. Students must also meet the University requirements in English and Humanities.

The additional courses necessary to fulfill the 29-hour requirement of the major should be selected to aid the student in the attainment of higher goals. However, the student cannot include more than three hours credit in Psychology 489 and three hours credit in Psychology 490 in the 29-hour requirement of the major, nor will the student be allowed to take more than eight hours in Psychology 489 or Psychology 490.

The Psychology Department offers course sequences designed to provide a more in-depth exposure to certain areas of psychology. Sequences are currently available in Behavior Modification, Child Psychology, Clinical Psychology, Industrial Psychology and Psychometrics. Detailed information about these sequences is contained in the Psychology Department Student Handbook which is available in the Psychology Office.

The student must also develop an area of related work which consists of 18 semester hours to be arranged by the student and the faculty adviser. Related work should be considered in terms of the fulfillment of the individual's vocational and educational goals. Students who receive teacher certification may use the education sequence as related work.

The Psychology Department has a unique program of honors work in psychology. Upper level honors courses are offered for exceptionally qualified majors and special honors sections of lower level courses, including General Psychology, are open to outstanding students in any discipline.

RECOMMENDED CURRICULUM FOR THE B.A. DEGREE IN PSYCHOLOGY

Freshman Year

Psychology 101	3	Psychology (202, 203, 210, 220, 230 or 271)	3
Psychology 101L	1	Humanities	3
Math 101 or 103	3	Math 122, Soc. Sci.	3
Natural Science (with lab; either biology, chemistry, earth science or physics)	4	Natural Science (either biology, chemistry, earth science or physics)	3-4
English	3	English	3
	14		15-16

Sophomore Year

Psychology 241	4	Psychology (Experimental Option)	3
Social Science	3	(Developmental/Social/Applied Option)	3
Related Work	3	Related Work	3
Elective	3	Social Science	3
Humanities	3	Elective	3
	16		15

Junior Year

Psychology (Experimental Option)	3	Psychology (300 level and above)	3-6
(Developmental/Social/Applied Option)	3	Related Work	6
Related Work	6	Electives	3-6
Electives	3		
	15		15

Senior Year

Seminar in Psychology	3	Seminar in Psychology	3
or		or	
Psychology 461	3	Psychology 461	3
Electives	12	Electives	11
	15		14

MASTER OF ARTS IN PSYCHOLOGY

The objective of the UNCC master's degree program in psychology is to train psychologists in the knowledge and skills necessary to address problems encountered in industry and urban living. The program has an applied emphasis and is designed to serve both full-time students and part-time evening students who need to improve their on-the-job skills and enhance their career development. There is an extensive practicum component utilizing the Charlotte community as a setting for applied experience.

Students may choose from two areas of concentration — community/clinical or industrial/organizational. Both programs require a minimum of 40 semester hours of graduate course work, of which 28 must be at the 600 level or above. Six hours may be transferred from another

accredited institution, other UNCC disciplines or from the 500 level psychology courses taught prior to the implementation of the graduate program (except PSY 504 and PSY 514), subject to departmental approval.

A core of courses in basic knowledge and methods in psychology is required of students in both concentrations. This core includes 12 semester hours of the following:

PSY 601: Research Design and Quantitative Methods in Psychology (3)
PSY 602: Psychological Measurement and Evaluation (3)
PSY 603: Program Evaluation (3)
PSY 770: Thesis (3)

In addition, all students are required to successfully complete comprehensive examinations in the general discipline as well as the area of concentration.

Community/Clinical

Students selecting this concentration will develop knowledge and skills in psychological assessment, various intervention strategies, working with particular populations, research evaluation and consultation. The following course work is required:

PSY 630: Behavior Disorders (3)
PSY 633: Community Psychology (3)
PSY 631: Clinical Evaluation (3)
or
PSY 632: Psychological Treatment (3)

PSY 640: Practicum in Clinical Psychology (3)
PSY 641: Practicum in Community Psychology (3)
PSY 650: Ethical and Professional Issues in Psychology (1)

Additional courses may be required for an individual student's program of study, as determined by the academic adviser and the Community/Clinical Program Committee.

Industrial/Organizational

Students selecting this concentration will develop knowledge and skills to deal with problems of people at work. Among the issues to be studied will be personnel selection, design and evaluation of various types of programs including those aimed at training employees, increasing performance, reducing conflict and enhancing job satisfaction. The following course work is required:

PSY 650: Ethical and Professional Issues in Psychology (1)
PSY 660: Industrial/Organizational Psychology (3)
PSY 670: Projects in Industrial/Organizational Psychology (3)

Nine credit hours from the following:

PSY 661: Personnel (3)
PSY 662: Individual Dynamics (3)
PSY 663: Group Dynamics (3)
PSY 664: Organizational Dynamics (3)
PSY 665: Counseling in Organizations (3)

Students in the Industrial/Organizational Psychology concentration are strongly encouraged to take six semester hours of practicum. Additional courses may be required for an individual student's program of study as determined by the academic adviser and the Industrial/Organizational Program Committee.

COURSE DESCRIPTIONS

Courses for Undergraduates

PSY 101. General Psychology. (3) A survey of the field including such topics as learning, emotions, motivation, personality, psychological testing and abnormal behavior. Emphasis on psychology as a behavioral science. May be taken with or without the lab. All psychology majors and those who wish to apply this course as partial fulfillment of the University science requirement must take PSY 101L during the same semester in which they take PSY 101.

PSY 101L. General Psychology Laboratory. (1) Two one-hour laboratory periods per week. An introduction to laboratory equipment and procedures. (May not be taken apart from the lecture portion of PSY 101 except by psychology majors who have permission of the Department.)

PSY 202. Educational Psychology. (3) Prerequisite: PSY 101. The psychology of learning; problems related to concept formation and application of behavior modification techniques to the classroom.

PSY 203. Psychology of Adjustment. (3) Prerequisite: PSY 101. The study of the process of adjustment. Consideration is given to psychological reactions to critical problems encountered in modern life. Introduction to different approaches to psychotherapy.

PSY 220. Child Psychology. (3) Prerequisite: PSY 101. Psychological development in infancy and childhood, including the development of learning, thought, language, social relations, intelligence and morality. Remedial measures suggested in dealing with early child tendencies which might otherwise lead to severe academic and social difficulties.

PSY 230. Adolescent Psychology. (3) Prerequisite: PSY 101. Developmental and psychological characteristics of adolescence. Research methods and familiarity with case studies emphasized. School and personality problems studied.

PSY 241. Research Methodology. (4) Prerequisites: PSY 101, PSY 101L and MAT 122. An introduction to the experimental, observational and correlational methods of psychological research. Basic concepts of philosophy of science will also be discussed. Emphasis on methodology rather than content but the applicability of methods to current topics in psychology is covered. Three lecture hours and one two-hour laboratory period a week.

PSY 271. Introduction to Industrial/Organizational Psychology. (3) The study of people at work: what motivates people to work and what leads to satisfaction, alienation or performance; how to lead others, the structure of an organization and processes of communication, decision making and conflict; socialization through selection and training; measurement of individual contributions; the design of work itself; way to change and develop entire organizations.

PSY 296. Introduction to Behavior Modification. (4) Prerequisite: PSY 101. An analysis of the methods and constructs of behavior modification including the application of the methods to laboratory research. Three lecture hours and one two-hour laboratory period a week.

PSY 301. Basic Processes in Psychological Assessment. (3) Prerequisites: PSY 101 and PSY 101L, MAT 122. An analysis of the basic issues and processes in psychological testing, including scaling procedures, reliability and validity, correlational techniques used in test construction, a review of various kinds of psychological tests and basic approaches to test interpretation.

PSY 303. Social Psychology. (3) Prerequisite: PSY 101. The social behavior of individuals. Individuals' behavior in relation to others. Attitude change, social conflict, social interac-

tion, social perception and social influence processes are some of the specific topics treated. General theories of social behavior and research approaches are also considered.

PSY 305. Psychology of Personality. (3) Prerequisite: PSY 101. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, the perceptual viewpoints in the light of contemporary research.

PSY 307. Abnormal Psychology. (3) Prerequisite: PSY 101. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical and experimental contributions in the field.

PSY 310. Comparative Psychology. (3) Prerequisite: PSY 101. An introduction to the study of animal and human behavior from a comparative point of view. Emphasis on the classification of behavior patterns as well as the origin and development of these patterns.

PSY 311. Psychology of Learning. (3) Prerequisite: PSY 101. (Completion of PSY 241 is stongly recommended.) A survey of the major theories and empirical findings in the area of learning.

PSY 312. Motivation. (3) Prerequisite: PSY 101. A study of the current theories and research in the area of human and animal motivation.

PSY 313. Sensation and Perception. (3) Prerequisite: PSY 101. (Completion of PSY 241 is strongly recommended.) A survey of sensory and perceptual processes, including such topics as psychophysics, information processing and color.

PSY 320. Cognitive and Language Development. (3) Prerequisites: PSY 101 and PSY 220. A study of the research on the development of language, thought and related behaviors in children, including information processing, Piaget's theory of cognitive development, acquisition of sentence structure, and biological foundations of language.

PSY 321. Social and Personality Development. (3) Prerequisites: PSY 101 and PSY 220. A study of the research on social and personality development of children, including infant social behavior, socialization practices, independence and achievement, aggression, sex-role development and moral development.

PSY 322. Psychology of Adult Development and Aging. (3) Prerequisites: PSY 220 or PSY 230, or equivalent. A study of theory, research and methodology related to psychological development through adulthood and old age. Emphasis on processes underlying continuity and change in adulthood, including personality and socialization, cognitive development and the psychophysiology of aging.

PSY 372. Psychology of Personnel: Employee Selection and Classification. (3) Prerequisites: PSY 101, PSY 101L, PSY 241 and PSY 271. An analysis of the methods, techniques and procedures used to select and classify employees.

PSY 373. Psychological Bases of Training Programs. (3) Prerequisites: PSY 101, PSY 271, or consent of instructor. Alternative theories about adult learning will be applied to the development and conduct of training programs in industry. Some topics treated include how to develop training needs, a description of methods available to trainers such as programmed instruction and sensitivity training, and how to evaluate the effects of various training techniques.

PSY 396. Consequences and the Sources of Behavior Control. (4) Prerequisite: PSY 296. An analysis of the application of the principles and techniques of the experimental analysis of behavior to a variety of behavior problems in a number of different environments with an emphasis on extrapolation to new and different problems and settings. (Students will be required to develop individualized projects utilizing the material discussed in class.)

PSY 401. Topics in Psychology. (3) Prerequisite: Consent of the instructor. Examination of special psychological topics. May be repeated for credit.

PSY 404. Introduction to Clinical Process. (4) Prerequisites: PSY 307 and PSY 203. Overview of theories of behavior intervention including behavioral management, crisis intervention and clinical assessment. The course includes a two-hour lab, involving behavioral rehearsal and practical training techniques.

PSY 420. Child Psychopathology. (3) Prerequisites: PSY 101, PSY 220 and PSY 307 or the equivalent. Principles of classification, assessment and treatment of children and adolescents who display deviant affective, cognitive and social behavior.

PSY 430. Human Cognitive Processes. (3) Prerequisite: PSY 101. A study of the processes involved in such complex human behaviors as language (acquisition and usage), memory and problem solving. Emphasis will be upon experimental findings and current theories.

PSY 451. Physiological Psychology. (3) Prerequisite: PSY 101. The relationship of physiological systems to integrated behavior. Emphasis on neural aspects of behavior and current studies in reaction to drug and other stimuli.

PSY 461. History and Systems of Psychology. (3) Prerequisite: PSY 101. Influential psychological systems and their historical antecedents. Emphasis on Gestalt, psychoanalytic and behavior theory. Evaluation of current existential influence.

PSY 480. Research Methods in Physiological Psychology. (4) Prerequisites: PSY 101 and permission of the instructor. An introduction to current laboratory techniques in physiological psychology, including basic surgeries, lesioning, stimulation and histology. Three lecture hours and one two-hour laboratory period a week.

PSY 489. Practicum in Applied Psychology. (1-4) Prerequisite: Permission of the instructor and the Psychology Department. A course allowing junior and senior students the opportunity to work in practical settings related to psychology under the supervision of a faculty member. May be repeated for credit with departmental permission. The student must have obtained approval in the semester preceding the semester in which the practicum is to be taken. Offered only on a *Pass/No Credit* basis.

PSY 490. Individual Studies in Psychology. (1-4) Prerequisite: Permission of the instructor and the Psychology Department. A course allowing the student of psychology an opportunity for individualizing study. This study may take the form of initiating, designing and conducting an original research problem or a critique and synthesis of the existing research in his or her area of interest. May be repeated for credit. The student must have obtained approval in the semester in which the course is to be taken.

PSY 491. Seminar in Human Adaptation and Behavior. (3) Prerequisite: Senior standing and permission of the instructor. Intensive reading and discussion in selected areas of psychology, such as stress, personality, emotions and psychopathology.

PSY 492. Seminar in Social Psychology. (3) Prerequisite: Permission of the instructor. An intensive study at the advanced level of topics of current research and theoretical interest in social psychology.

PSY 493. Seminar in Physiological Psychology. (3) Prerequisite: PSY 101 and permission of the instructor. An intensive study of selected topics in physiological psychology, such as psychopharmocology, biofeedback and the neuro-physiological basis of learning and memory.

PSY 494. Seminar in Experimental Psychology. (3) Prerequisite: PSY 101 and permission of the instructor. An in-depth examination of an area of current concern in the psychological laboratory. Each semester will have a different focus, and such topics as discrimination learning, memory, experimental analysis of behavior, attention will alternate.

PSY 495. Seminar in Developmental Psychology. (3) Prerequisite: PSY 101 and permission of the instructor. This seminar will be a concentrated examination of current issues and

research in a field of developmental psychology. Such topics as the concept of development in historical and current usage, learning (especially in human infants), development of social relations, intelligence, cognitive abilities and the acquisition of language will be treated in detail.

PSY 496. Senior Seminar in Behavior Modification. (3) Prerequisites: PSY 296, PSY 396. Discussion and analysis of the current issues in behavior modification, including an integration of principles, techniques and practical experiences.

PSY 497. Senior Seminar in Industrial Psychology. (3) Prerequisites: PSY 271 and consent of instructor. Discussion and study of topics of current concern in industrial/organizational psychology and related disciplines. Issues that affect individuals at work and organizations in society will be examined.

PSY 498. Seminar in Community Psychology. (3) Prerequisites: PSY 307, 203 or permission of the instructor. This seminar will consist of extensive application of psychological research findings to specific problems in the community. Emphasis is on problems hypothesized to directly affect psychological well-being.

Courses for Advanced Undergraduates and Graduates

PSY 501. Psychology of Exceptional Children. (3) (3G) Assessing and treating the exceptional child. Emphasis on current research in several diagnostic categories, including the emotionally disturbed, learning disabled, mentally retarded, physically handicapped and gifted.

PSY 503. Psychology of Mental Retardation. (3) (3G) An intensive study of the psychological and sociological aspects of mental retardation in relation to adjustment and educational development. Emphasis on current research and diagnostic categories.

PSY 504. Tests and Measurements. (3) (3G) Prerequisites: PSY 101. A survey of psychological and educational measurements in current use. Emphasis will be placed on structure, administration and application of group tests. Individual tests such as Stanford-Binet, WISC and WAIS will be reviewed.

PSY 505. Advanced Personality Theory. (3) (3G) A critical evaluation of the major personality theories including an extensive survey of current research.

PSY 599. Selected Topics in Psychology. (3) (3G) Prerequisites: Junior, Senior or Graduate standing. Examination of special psychological topics.

Courses for Graduate Students Only

PSY 601. Research Design and Quantitative Methods in Psychology. (3G) Prerequisites: MAT 122 and PSY 241 or equivalent. A survey of experimental and correlational methods of psychological research, including single subject designs. Emphasis will be on research design and the application of statistical methods to psychological research.

PSY 602. Psychological Measurement and Evaluation. (3G) Prerequisite: PSY 601. Consideration of the basic concepts in the measurement of psychological characteristics such as scaling, reliability, validity and norms. Introduction to the construction and use of the intelligence tests, personality inventories, interest test, attitude scales, etc. Interviewing, survey techniques and behavioral assessment will also be discussed.

PSY 603. Program Evaluation in Psychological Settings. (3G) Corequisite or Prerequisite: PSY 602, Prerequisite: PSY 601. A survey of models of evaluative research: also techniques, designs and administration of program evaluation. Topics such as role conflicts, entry issues, goal setting, research for program planning and implementation will also be covered. Examples of actual program design and evaluation will be discussed.

PSY 610. Physiological Psychology. (3G) The relationships between the nervous system and behavior. Topics will include the structure of the nervous system and nerve conduction, the functional organization of the central nervous system, neuronal and hormonal control of behavior, biofeedback and other appropriate topics.

PSY 611. Psychology of Learning and Memory. (3G) A study of the basic principles, theories and current research in learning. The emphasis will be on human learning and memory.

PSY 612. Sensation and Perception. (3G) A study of the processes involved in receiving and interpreting sensory data. Includes a discussion of all the sensory systems with an emphasis on vision.

PSY 613. Applied Behavior Analysis. (3G) A study of the use of behavior principles in applied settings. Topics covered include: behavioral assessment, positive and negative reinforcement, punishment, extinction, stimulus control, maintenance and generalization of behavior change. Each student will design and carry out a behavior change project.

PSY 614. Developmental Psychology. (3G) A study of the basic principles and findings concerning psychological development across the lifespan.

PSY 615. Social Psychology. (3G) A survey course covering the principles, theories and research in human social behavior. Topics covered include affiliation, person perception, conformity and attitudes.

PSY 630. Behavior Disorders. (3G) A review of diagnostic systems in current use and the implications of these systems for psychologists. Several perspectives on psychological processes, behavior disorders and diagnosis will be discussed, including psychodynamic, behavioral and social models. There will be extensive reading in the literature on theory and research.

PSY 631. Clinical Evaluation. (3G) An advanced course in the methodology of psychological evaluation, the appropriate use of psychological assessment procedures, practice in the administration and interpretation of results, and writing evaluation reports. A variety of intellectual, behavioral, and personality assessment techniques will be studied.

PSY 632. Introduction to Psychological Treatment. (3G) Prerequisite: PSY 630. An introduction to the major approaches to psychological intervention, including psychodynamic, behavioral, humanistic and cognitive-behavioral systems. Practical therapy considerations will be emphasized, including crisis intervention, client behaviors at various stages of therapy, handling difficult clients and ethical and professional issues.

PSY 633. Community Psychology. (3G) An introduction to the research, intervention techniques and settings associated with major approaches in community psychology. The mental health, organizational, ecological and social action models will be studied.

PSY 640. Practicum in Clinical Psychology. (1-3G) Prerequisite: PSY 630 and permission of the Department. This practicum presents an opportunity for the student to obtain experience in clinical assessment and/or psychotherapy with clients at local agencies under supervision from a faculty member on campus. May be repeated for credit with departmental approval.

PSY 641. Practicum in Community Psychology. (1-3G) Prerequisite: Permission of the department. Application of the principles of community psychology to special problems within an organization or community setting. The project might include, but would not be limited to, consultation, program development, training, community education or program evaluation. May be repeated for credit with departmental approval.

PSY 650. Ethical and Professional Isssues in Psychology. (1G) An orientation to the roles and responsibilities of psychologists, including ethical standards in professional practice, testing and research. The course will also introduce students to the expectations and problems confronting psychologists in industrial, clinical and professional organizations.

PSY 660. Industrial/Organizational Psychology. (3G) An overview of research on human behavior within organizations. Topics include personnel selection and placement, job analysis, motivation, satisfaction, consumer psychology and ergonomics.

PSY 661. Personnel. (3G) Theories of personnel selection and placement. Includes coverage of EEOC and other government guidelines.

PSY 662. Individual Dynamics. (3G) An overview of research on the individual within the organization. Special emphasis on theories of motivation and job satisfaction.

PSY 663. Group Dynamics. (3G) An introduction to group processes, including group formation, group decision-making, leadership and group structure.

PSY 664. Organizational Dynamics. (3G) Introduction to organization theories and organizational change methods.

PSY 665. Counseling Psychology in Organizations. (3G) Application of psychology to special problems within the organization, especially the counseling of employees experiencing life problems, for example, retirement, alcoholism, interpersonal conflict.

PSY 670. Projects in Industrial/Organizational Psychology. (1-3G) Prerequisite: PSY 660. A structured practicum experience or research project in industrial/organizational psychology. May be repeated for credit with departmental approval.

PSY 699. Topics in Psychology. (3G) A discussion of selected topics in psychology.

PSY 770. Thesis. (1-3G) The thesis is coordinated with the student's interests and practical experience during the second year to allow the development of an area of specialization. Thesis projects can be of three types: 1) An original experiment which will contribute to the psychological literature; 2) A thorough case analysis including literature review and application; 3) The development of a community psychology program or intervention to accomplish an important, well-defined goal. A completed paper and oral presentation are required. May be repeated for credit with departmental approval.

Department of Religious Studies

Chairperson: Professor Underwood
Professor: Witherspoon
Associate Professors: St. Clair, Gestwicki, Meyer
Assistant Professor: Thomas
Lecturer: White

A student may satisfy the requirements for a major in religious studies after completing either of the two following programs:

(A) Course program in religious studies: A student who elects this option will be expected to complete a minimum of 30 semester hours, which will normally include the following: 101, 211, 212 and the Senior Seminar (491), for a total of 12 hours. The 18 hours remaining to be completed for the major are expected to give the student a substantial breadth in religious studies. Within these guidelines, the student will develop the course of study in consultation with his or her adviser. Advising sessions with the entire Department may be arranged by the student and/or adviser to consider special requests or problems pertaining to the nature of an individual student's program.

(B) Interdisciplinary program in religious studies: This option is intended to provide a course of studies which will make maximum use of the interdisciplinary aspects inherent in religious studies. Before the beginning of the junior year but after several courses in religious studies, a student may submit, after consultation with his or her adviser, a proposal for a program of study for the junior and senior years. If the proposal is approved by the department, the student will satisfy the requirement for a major in religious studies by completing the approved program rather than by taking any specified number of religious studies courses. This is not an honors program, and any student may submit a proposal to the Department. A detailed description of this program may be obtained from the office of the Department of Religious Studies.

COURSE DESCRIPTIONS

Courses for Undergraduates

REL 101. An Introduction to Religious Studies. (3) An introduction to the study of the religious dimension of human existence.

REL 211. Western Religious Thought. (3) An introduction to some of the major religions, myths, symbols, ideas and traditions that have informed the fundamental ways people in the West have seen themselves in the world.

REL 212. Eastern Religions. (3) An introduction to selected religions of the East such as Islam, Hinduism, Buddhism, Chinese and Japanese Religions. Special emphasis on their world views as expressed in the functional use of myth and symbol in the tradition.

REL 213. Hebrew Religious Thought. (3) The Hebrew religious tradition from the perspective of its development in the culture of the ancient Near East and from the perspective of its subsequent impact on Western culture.

REL 214. Christian Origins. (3) A study of the emergence of Christianity in its cultural context. Analysis of selected early Christian writings in English translation.

REL 215. Religion in American Culture. (3) An inquiry into the role of religion in the shaping of American culture.

REL 304. The Limits of Language. (3) An inquiry into what it means to be a linguistic creature living in a symbolic world.

REL 305. Images and Experience. (3) A study of the relationship between religious experience and images, as manifested privately (dreams, fantasies, ideals) and publicly (religion, myth, art).

REL 311. Hinduism. (3) A study of the ancient Vedic traditions and the development of Hinduism. Emphasis placed on the role of Hinduism in the development of Indian civilization.

REL 312. Buddhism. (3) The historical development of Buddhism with special attention given to its diverse manifestations in south Asia.

REL 313. Taoism. (3) A study of Chinese religious traditions, concentrating on Taoism in its philosophical formulations (Lao Tzu, Chuang Tzu) as well as its development in meditation, yoga, alchemy and ritual orthodoxy.

REL 314. Islam. (3) A study of the development of the traditions in Islam with special emphasis on Islamic culture, literature and mysticism.

REL 315. Visual Mysteries of India. (3) Prerequisite: REL 212 or consent of instructor. A study of the visual expressions of Hindus, Buddhists, Jainas and Muslims in the caves, temples, paintings and sculptures of India.

REL 327. Judaism. (3) Prerequisite: Junior standing or consent of the instructor. A systematic survey of the development of Jewish religious thought from the Middle Ages to the present. Reading from Maimonides, Buber and others.

REL 329. Christianity Through Art and Architecture. (3) A survey course covering Christian history from the catacombs to the 20th century. Focus is on those issues which are manifest in a study of religious expression in pictorial art, architecture and sculpture.

REL 332. Contemporary Black Religion in America. (3) An examination of the tenets of Black religion since World War II with particular emphasis on the influence of religion and religious leaders in the struggle for a Black humanity.

REL 333. Science, Technology and Human Vision. (3) Study of the impact of science and technology on the way we see ourselves and the world. Attention given to such topics as the relationship of science and religion, the place of the individual in a technological society and the visions of the scientific future.

REL 334. Quest in Literature. (3) Exploration of the spiritual dimension of contemporary and traditional literature. Focus may be on an artist, genre (novel, poetry, drama) or theme.

REL 336. The Artist As Visionary. (3) An examination of the role of visual imagination in the development of religious sensibilities.

REL 337. Films and Identity. (3) A study of basic themes of religious identity alienation, search, discovery, sexuality, death — as reflected in recent American movies and foreign films. Film laboratory required.

REL 339. Primitive Religions. (3) A discussion of the evidence for the religious conceptions of prehistoric man as found in painting, sculpture, artifacts, burial practices, etc. A study of two or three selected examples of tribal religion in the modern period.

REL 340. Studies in Western Religious Thought. (3) Selected works of major religious authors in the West.

REL 341. Medieval Christianity. (3) A study of Christianity in the context of the culture of the High Middle Ages (1050-1350 A.D.)

REL 343. Western Esoteric Traditions. (3) A study of traditions which emphasize that the highest wisdom is found in the inner self. Emphasis on the inner journey, resurgence of esoteric traditions in recent literature, figures who embody the archtype of wisdom;

western historical traditions of gnosticism, mysticism, hermeticism, grail legends, alchemy; the roots of these in mythology; relation of these to interdisciplinary and cross-cultural (East-West) character.

REL 344. Greek Myths and Religions. (3) A study of gods and goddesses, heroes and heroines in ancient Greek myths and religions. Greek myth and later Western religions. Polytheism and monotheism. Functions of myth. Contemporary interpretations of Greek myth.

REL 345. Jung and Religion. (3) A study of the works of C.G. Jung as they relate to an understanding of religion and religious experience. Emphasis on his interpretations of myths and symbols as they appear in both Western and non-Western religions. His theories of creativity and the arts, religious expressions and quests for meaning.

REL 346. Religion and the Self. (3) A study of views of the self in relation to traditional religious views, particularly in the works of such people as Freud, Jung, Brown, Erikson, Skinner.

REL 348. Religion in Asian Literature. (3) A study of religious ideas and themes in the literature of the East. Examples chosen from such literary forms as novel, short story, autobiography, drama and poetry. May be repeated for credit when the subject matter changes.

REL 350. Topics in Religious Studies. (3) Treatment of a special topic in religious studies. May be repeated for credit.

REL 360. Major Figure in Religious Studies. (3) Concentration on and investigation of the life and works of a major figure who has contributed to the academic study of religion. May be repeated for credit for different figures.

Courses for Advanced Undergraduates (and Graduates as Designated)

REL 401. Philosophy of Religion. (3) Prerequisites: PHI 201 and junior standing (same as PHI 401.)

REL 402. Hebrew Prophetic Religion. (3) Prequisite: REL 301 or consent of the instructor. The historical development of the prophetic movement from its origins to its culmination in the classical prophets of the eighth to sixth centuries B.C. Emphasis placed on the contributions of the prophets to their own day and their significance for contemporary religious thought.

REL 403. The Psalms and Wisdom Literature of Israel. (3) Prerequisite: REL 301 or consent of the instructor. A study of the origin and content of the Psalms and a study of the place of wisdom literature in the development of Hebrew thought.

REL 404. Jesus. (3) Prerequisite: REL 302 or consent of the instructor. An intensive study of the synoptic gospels for an understanding of Jesus and the religion he taught.

REL 405. Paul. (3) Prerequisite: REL 302 or consent of the instructor. A detailed analysis of the Pauline corpus. Particular reference is made to the occasion, purpose and significance of each letter for the emerging Christian community.

REL 406. Zen Buddhism. (3) Prerequisite: REL 212 or consent of the instructor. A study of Buddhist origins in India, development of the Ch'an (Zen) school in China and Japan, with special emphasis on the formative influences of Zen on Japanese art and culture.

REL 411. Tibetan Religion (3) Prerequisite: REL 212 or consent of the instructor. A study of the symbols, beliefs and practices of the Tibetan tradition, which grew out of the fusion of the ancient native religion and Buddhism.

REL 432. Religion and Modern Thought. (3) (3G) Prerequisite: Consent of the instructor. An intensive analysis of selected issues which stem from the interaction of modern thought and modern religious sensibilities.

REL 450. Topics in Religious Studies. (3) (3G) Prerequisite: Consent of the instructor. May be taken for graduate credit.

REL 460. Languages of Sacred Texts. (3) Prerequisite: Consent of the instructor (same as FL 350). A study of the language and literature of a particular religious tradition. The course aims at a level of proficiency which will enable the student to begin to read the sacred writings of a religion in the original language (Koine Greek, Biblical Hebrew, Classical Chinese, Sanskrit). May be repeated for credit when the subject matter changes.

REL 490. Independent Studies. (1 to 3) Prerequisite: Consent of instructor. May be repeated for credit.

REL 491. Senior Seminar. (3) Required of majors in final year of studies. Others may be admitted with consent of instructor.

Courses for Graduate Students Only

REL 690. Directed Studies. (3G) Prerequisite: Consent of the instructor. May be repeated for credit.

Social and Behavioral Sciences

SBS 399. Venture. A Wilderness Experience. (1-3) Prerequisite: Permission of Venture Director. Venture is an experientially oriented course with emphasis on wilderness appreciation, outdoor-adventure skills and interpersonal relationships. Activities will be progressive, that is, one experience will naturally flow into the next. To facilitate initiative and leadership development, students will play a major role in determining the overall course pace and direction. May be repeated for credit.

SBS 480. Internship. (3 or 6) Prerequisites: Junior standing, acceptance into the program, and approval of the student's major department. A project-oriented, service-learning internship with cooperating community organizations. Includes a seminar for the analysis of needs in the urban community, the responses being generated to meet them, and the relationship between internship experiences and the student's academic growth. Amount of credit to be determined by the number of hours of the field experience.

NOTE: The student's major department has the option of recognizing credit for these courses as fulfilling departmental requirements. Evaluation will be on a *Pass/No Credit* basis which does not apply against the four courses allowed on a *Pass/No Credit* option for UNCC students.

Department of Sociology and Anthropology

Chairperson: Associate Professor Rent
Professor: Goodnight
Associate Professors: Bonney, Dubisch, Ferraro, Forrest, Hutchison, Lance, Michalowski
Assistant Professors: Bertoli, Carlton, Day, Hicks, Latimore, Levy, Moore, Pearson, Scout, Stroud
Lecturers: Krol, Majeed, Trevathan
Adjunct Professors: Robicsek, Fischer

The Department of Sociology and Anthropology includes the disciplines of sociology and anthropology and the field of social work. Academic majors are available in anthropology and sociology and a concentration in social work is offered.

Anthropology. Anthropology is the study of man and his culture and is organized into four subfields: cultural anthropology, archeology, physical anthropology and linguistics. It focuses upon his cultural heritage and history and upon the biological aspects of man which relate to his cultural development. It emphasizes the comparative study of man and the cross-cultural analysis of his institutionalized responses to fundamental human needs.

The study of anthropology is relevant for persons whose occupations and endeavors require an understanding of a variety of cultures. It is particularly useful for teachers of students from diverse cultural backgrounds, social workers and persons seeking careers in journalism and communications as well as persons who plan to work in or with foreign countries. It provides competencies needed for employment in such organizations as museums, highway departments (as archeologists), police departments (as physical anthropologists), the park service and the Bureau of Indian Affairs.

Sociology. Sociology is the scientific study of man's social life. It focuses upon the forces which organize and structure societies and smaller groups as well as the forces which disorganize and threaten to dissolve them. As a science, sociology applies an objective and systematic method of investigation to identify the patterns and forms of social life and to understand the processes by which they are established and changed.

The study of sociology is particularly attractive to persons preparing for further study and professional careers as well as persons who are seeking a liberal education and immediate employment. As a liberal arts program, it enables the student to understand the social context in which he finds himself and the social forces which shape his personality, his actions and his interactions with others. As a pre-professional program it provides a good background for persons entering social work, law, teaching, the ministry, journalism, planning, public relations and personnel services. It also provides analytical skills related to market research and program evaluation in human services, sales, management and other business activities.

Social Work. Social work includes the study and enhancement of human social functioning. It focuses upon the prevention, treatment and control of problems in the social life of individuals, groups and communities. It blends knowledge from the social and behavioral sciences with social work theory and skills in the professional application of the helping relationship.

The study of social work prepares persons for further study and careers in social welfare, including direct social service, family counseling and crisis intervention. It provides an excellent background for careers involving the planning, administration and evaluation of social services. It also provides knowledge and skills utilized by vocational rehabilitation counselors, probation and parole officers, medical and psychiatric social workers and other members of community and industrial social service organizations.

THE PROGRAMS

Anthropology Major

The undergraduate program in anthropology is designed to respond to the following objectives:

1. To examine society and culture scientifically and to develop an understanding of the research process;
2. To examine human behavior from a cross-cultural perspective in order to reduce ethnocentrism and develop a better perspective of one's culture;
3. To examine the interconnections between the biological, cultural and social bases of human behavior within both contemporary and historical frameworks;
4. To develop an understanding of the interconnections between the various parts of socio-cultural systems and their functional implications for change; and
5. To develop an understanding of anthropological inquiry and how it relates to other scientific and humanistic disciplines.

The anthropology curriculum is designed to familiarize the student with the broad range of anthropological concerns (socio-cultural, anthropology, archeology, physical anthropology and anthropological linguistics) and to enable the student to integrate these sub-fields into a framework for the holistic understanding of human behavior and evolutionary development. Formal course offerings are supplemented with extra-classroom activities involving the application of anthropological theories and methods to contemporary urbanizing society. Students should consult with the Department of Sociology and Anthropology concerning internships and field schools in anthropology and archeology.

Requirements. As a means of achieving the above objectives, students selecting a major in anthropology must satisfy the following requirements:

1. Completion of 31 semester hours of anthropology, including
   a. ANT 101, 301 and 401:
   b. Twenty-one semester hours of electives in anthropology of which at least six semester hours must be taken in cultural anthropology, three semester hours in archeology and, three semester hours in physical anthropology; and
2. Completion of 18 semester hours of related work to be arranged in consultation with the student's adviser and organized around a region, an allied discipline or theme.

SUGGESTED CURRICULUM FOR THE B.A. DEGREE IN ANTHROPOLOGY

Freshman Year

Anthropology 101	3	Anthropology Elective	3
English	3	English	3
Foreign Language or Math	4-3	Foreign Language or Math	4-3
Natural Science	4	Natural Science	4
Humanities	3	Social Science	3
	17-16		17-16

Sophomore Year

Anthropology Electives	6	Anthropology Electives	6
Foreign Language or Elective	4-3	Foreign Language or Elective	4-3
Humanities	3	Social Science	3
Related Work	3	Related Work	3
	15-16		15-16

Junior Year

Anthropology 301	4	Anthropology Electives	6
Related Work	3	Related Work	3
Electives	6	Electives	6
	13		15

Senior Year

Anthropology Elective	3	Anthropology 401	3
Related Work	3	Related Work	3
Electives	9	Electives	9
	15		15

Sociology Major

The undergraduate program in sociology is designed to respond to the needs of individuals and society:

1. To understand themselves, each other and the interrelationships between individual and society;
2. To comprehend the past and present influence of social factors and their implications for the future;
3. To acquire the perspective and skills necessary for acquiring and applying sociological knowledge; and
4. To predict and control the influence of social factors for the prevention and amelioration of social problems.

The sociology curriculum is designed to familiarize the student with the questions sociologists ask about social reality, the conceptual and methodological tools they utilize to gain answers to these questions and the resultant body of knowledge. It is relatively structured in terms of the number of courses the student is required to take, but it is highly flexible in terms of the freedom to focus upon and become involved in inquiry pertaining to sociological problems of the student's own choosing within each of these courses. Students should consult with the Department of Sociology and Anthropology about internship opportunities in sociology.

Requirements: A major in sociology leading to the B.A. degree consists of (1) a minimum of 29 semester hours of sociology beyond the 100 level including the core curriculum of SOC 151, 353, 354, 355, 356 and 456; and (2) a minimum of 18 semester hours of related work.

Related work is arranged by the student in consultation with an adviser and may consist of a concentration of courses; (1) within a single discipline; (2) selected from two complementary disciplines; or (3) focused upon a specific topic. Students in the teacher certification program may use the courses in the professional education sequence as their related work.

SUGGESTED CURRICULUM FOR THE B.A. DEGREE IN SOCIOLOGY

Freshman Year

Sociology 151	3	Sociology Elective	3
English	3	English	3
Math or Foreign Language	3-4	Math, Logic or Foreign Language	3-4
Natural Science	4	Natural Science	4
Humanities	3		
	16-17		16-17

Sophomore Year

Sociology Elective	3	Sociology 353	3
Social Science	3	Sociology Elective	3
Humanities	3	Related Work	3
Related Work	3	Foreign Language or Electives	4-6
Foreign Language or Elective	3-4		
	15-16		13-15

Junior Year

Sociology 354	3	Sociology 355	4
Sociology Elective	3	Related Work	3
Related Work	3	Electives	9
Electives	6		
	15		16

Senior Year

Sociology 356	4	Sociology 456	3
Sociology Internship	3-6	Related Work	3
Related Work	3	Electives	6-9
Electives	3		
	13-16		12-15

Concentration in Social Work

The social work program is designed primarily to prepare students for beginning professional practice and/or graduate study in social work. The curriculum is designed to familiarize the student with the development and philosophy of social work as a profession and the historical and contemporary contexts of social welfare as an institution. It provides for the acquisition and supervised application of basic knowledge, values, methods and skills of social work practice. Two options are available; students may (1) complete requirements for the social work concentration described below or (2) fulfill the related work requirements of sociology, anthropology and various other disciplines through completion of 18 hours of social work courses. Field placement is not available to students who select the latter option.

Requirements: A concentration in social work requires a minimum of 35 semester hours including 21 hours of course work and 14 hours of field placement and seminar. The core courses in the social work concentration build upon each other and are taken in the following sequence: SW 280, 281, 381, 383, 382, 384 and 480. Students must complete at least 12 hours of the core before they are approved for enrollment in the field placement sequence: SW 482, 483, 484 and 485.

SUGGESTED SEQUENCE FOR THE SOCIAL WORK CONCENTRATION

For Students Entering the Program as Sophomores:

Sophomore Year

SW 280 3	SW 281 3

Junior Year

SW 383 3	SW 382 3
SW 381 3	*SW 384.....3

Senior Year

SW 482 6	SW 480 3
SW 483 1	SW 484 6
	SW 485 1

For Students Entering the Program as Juniors:

Junior Year

SW 280 3	SW 382 3
SW 281 3	SW 383 3
SW 381 3	*SW 384.....3

Senior Year

SW 482 6	SW 480 3
SW 483 1	SW 484 6
	SW 485 1

*SW 384 may be taken during the semester listed or any subsequent semester.

COURSE DESCRIPTIONS

ANTHROPOLOGY

Courses for Undergraduates

ANT 101. General Anthropology. (3) A general introduction to the four subfields of anthropology covering such topics as man's biological and cultural evolution; the structure and functions of various institutions in primitive, peasant and modern complex societies; language and culture; and methods of cultural analysis and theories of culture. Prerequisite for all upper level courses in anthropology.

ANT 210. Topics in Ethnography. (3) Prerequisite: General Anthropology. Examination of ethnographic regions of the world selected for study by students and faculty members. May be repeated for credit as the topics vary. Examples of courses which have been taught under this designation are Hunters and Gatherers, Plains Indians, Peoples of Modern Greece, Peoples of The Mediterranean.

ANT 211. **Peoples of Africa. (3)** Prerequisite: ANT 101. Examination of traditional social cultural institutions among African peoples with particular emphasis on the analysis of traditional economic, political, religious and kinship institutions and their structural implications for change.

ANT 212. **North American Indians. (3)** Prerequisite: ANT 101 or consent of the instructor. Comprehensive survey of the native peoples of America, their culture at the time of European contact, major historical events and relationships, and contemporary issues in Indian affairs.

ANT 213. **Peasant Society. (3)** Prerequisite: ANT 101. Examination of peasant societies, including analysis of general characteristics of peasantry and examination of individual peasant societies. Emphasis is on both the traditional aspects of these societies and on contemporary problems such as modernization, revolution, population growth and world hunger.

ANT 221. **Kinship and Marriage. (3)** Prerequisite: ANT 101. An examination of types of kinship groups, kinship terminology and behavior, marriage, types of family organization, and sex roles as they relate to kinship.

ANT 222. **Belief Systems. (3)** Prerequisite: ANT 101. An examination of belief systems, their structure and content and their role in human behavior. Included will be religion, philosophy, myth, folklore, magic and ritual.

ANT 224. **Language and Culture. (3)** Prerequisite: ANT 101. An examination of the relationship between language and culture including such topics as the Sapir-Whorf hypothesis, componential analysis, dialects and situation analysis of language.

ANT 225. **Urban Anthropology. (3)** Prerequisite: ANT 101. The cross-cultural analysis of urban social structures, including the rise of early cities, analysis of migration and adaptation of rural populations. Varieties in forms and function of the city will be examined, along with changes and continuities in family life, economic institutions, religious norms and world view.

ANT 241. **Principles of Physical Anthropology. (4)** Survey of the major components of modern physical anthropology, including principles of heredity and genetics, evolutionary theory, human biological characteristics, human evolution, race and the comparative study of primate paleontology, anatomy, physiology and behavior. Three lecture hours and one laboratory period of two hours a week. (Satisfies natural science general degree requirement.)

ANT 242. **Primate Behavior. (3)** Prerequisite: ANT 101. Examination of primate behavior, with emphasis on field and laboratory studies of apes and Old World Monkeys. The relationship of these studies to the evolution of human behavior and the development of culture will be discussed along with their significance for understanding human behavior today.

ANT 250. **Topics in Archeology. (3)** Prerequisite: ANT 101. Examination of specialized topics in archeology. May be repeated for credit as topics vary. Examples of courses taught under this designation are Historic Archeology, Old World Archeology.

ANT 251. **General Archeology. (3)** Prerequisite: ANT 101. A survey of trends in cultural development, a comparison of representative cultural histories from major world areas and a survey of major archeological sites, methods and theories.

ANT 252. **New World Archeology. (3)** Prerequisite: ANT 101. Survey of prehistoric cultures of North, South and Meso-America. Particular emphasis is given to the archeology of eastern North America. Basic archeological methods are outlined.

ANT 290. **Topics in Anthropology. (1-3)** Prerequisite: Introductory anthropology or consent of the Department. Examination of specialized topics in anthropology. May be repeated for credit as topics vary.

Courses for Advanced Undergraduates (and Graduates as Designated)

ANT 301. Applications of Anthropological Theory and Methods. (4) Prerequisite: ANT 101 and six additional hours in anthropology. Examination of the interrelationship of anthropological theory including the study of the major theoretical approaches and the methods appropriate to them. Students will engage in projects utilizing various methodological techniques for the development and researching of various problems. Three hours of lecture-discussion and two hours of lab each week.

ANT 311. Culture Change and Applied Anthropology. (3) Prerequisite: ANT 101. An examination of cultural dynamics, agents and conditions promoting growth, mechanisms of cultural growth, and the application of anthropological theories and methods to domestic and foreign programs of sociocultural change.

ANT 321. Culture and Personality. (3) (3G) Prerequisite: ANT 101 or consent of the instructor. A survey of anthropological contributions to theories of personality formation including data on tribal and national characteristics, patterns of childbearing, culturally derived aspects of human behavior, deviancy and personal integration with the cultural milieu.

ANT 322. Medical Anthropology. (3) Prerequisite: ANT 101 or consent of the Department. Examination of the relationship between cultural beliefs and practices and patterns of health and illness in human populations. Consideration of such topics as the role of disease in human evolution, ecology and epidemiology, cultural systems of healing, the roles of patient and healer in cross-cultural perspective, the relationship between culture and emotional states, and the role of religion, witchcraft and magic in health and healing. Beliefs and practices from American society will be compared with those of other societies to illustrate the role that culture plays in the development of all medical systems.

ANT 353. Field Project in Archeology. (4) Prerequisite: ANT 101. Examination of and practical experience in archeological techniques. With instructor's guidance and supervision, students will conduct field research on an historic or prehistoric archeological site. Research may include field reconnaissance, excavation, mapping, systematic description and analysis of cultural material and/or other techniques appropriate to the site and research problem.

ANT 401. Seminar in General Anthropology. (3) Prerequisite: ANT 301 and senior standing. The synthesis and integration of the various sub-fields of anthropology through the present presentation of projects to seminar members for criticism and evaluation. The present orientation of the discipline, its uses and its future will be examined.

ANT 480. Internship in Anthropology. (3-6) Prerequisite: Consent of the Department. Research and/or in-service training experience for selected students in cooperating community organizations. Content of each internship will be based upon a contractual agreement between the student, Department and community organization. Amount of credit to be determined by the nature and extent of the internship assignment. May be repeated for credit up to a maximum of six semester hours. Offered only on a Pass/No Credit basis.

ANT 490. Topics in Anthropology. (1-3) (1-3G) Prerequisite: ANT 101 and consent of the department. Examination of specialized topics in anthropology. May be repeated for credit as topics vary. Examples of courses which have been taught under this designation are Human Ecological Systems, Women and Culture, Primitive Arts and Crafts.

ANT 495. Directed Individual Study. (1-4) Prerequisite: ANT 101 and consent of the Department. Supervised investigation of problems and areas in anthropology of special interest to the student. May be repeated for credit.

SOCIAL WORK

Courses for Undergraduates

SW 280. The Field of Social Work. (3) Provides an understanding of the development and philosophy of social work as a profession. An overview of the personal and societal needs that social workers deal with, the methods and organizational arrangements for dealing with these needs, and the particular roles and tasks of social workers.

SW 281. Human Behavior and the Social Environment. (3) Examination of the interaction between the individual, family, community and larger social system as it influences the processes of individual problem-solving and the delivery of social services. Consideration of the impact of racism, sexism, poverty, ethnicity, and social class upon individual and group behavior as well as social work practice.

SW 381. Social Work Process. (3) Prerequisite: SW 280. Provides a generic base for dynamics of the helping process. Introduces application of basic knowledge, values, skills and methods underlying the profession of social work. Structured to provide opportunities to learn how to utilize one's self in a disciplined and structured way in relationships with others.

SW 382. Social Work Methods. (3) Prerequisite: SW 381. Application of concepts, theories, principles and methods of intervention used in social work practice. Emphasizes the development of skill in the professional use of self with individuals, groups and communities.

SW 383. Foundations of Social Welfare. (3) Prerequisite: SW 280. Examination of foundations of social welfare as an institution in an historical and contemporary context. Attention is given to the issues, processes, values and conflicts which influence social welfare programming.

SW 384. Transitional Stages Through Life: A Social Work Perspective. (3) Prerequsite: SW 280. Examination of the transitional and developmental patterns of the individual through life from the perspective of social service needs.

SW 480. Social Welfare Policy. (3) Prerequisite: SW 280. Studies the nature and development of social welfare policy and the implications of policy for program design and service delivery. Analysis of the role of the social worker in developing and implementing social welfare policies.

SW 482. Social Work Field Placement I. (6) Prerequisite: SW 382 and consent of the department; Corequisite: SW 483. Directed field experience under professional supervision in selected community agencies. Offers opportunities to integrate learning, theory and practice skills in preparation for beginning professional practice. Offered only on a Pass/No Credit basis.

SW 483. Social Work Field Placement Seminar I. (1) Corequisite: SW 482. Analysis and discussion of student field experiences to further integrate and synthesize social work knowledge, values and skills.

SW 484. Social Work Field Placement II. (6) Prerequisite: SW 482; Corequisite: SW 485. A continuation of SW 482. Offered only on a Pass/No Credit basis.

SW 485. Social Work Field Placement Seminar II. (1) Corequisite: SW 484. A continuation of SW 483.

SW 490. Topics in Social Work (1-3) Prerequisite: Consent of the Department. Examination of specialized topics in social work selected by students and faculty. May be repeated for credit as topics vary. (A listing and brief description of specific courses offered each term is available from the departmental office.)

SW 495. Directed Individual Study. (1-4) Prerequisite: Consent of the Department. Supervised investigation of a social work problem of special interest to the student. May be repeated for credit.

SOCIOLOGY

Courses for Undergraduates

SOC 151. Introduction to Sociology. (3) Introduction to sociology as a discipline, the sociological perspective and the process of sociological inquiry emphasizing fundamental concepts, principles and procedures.

SOC 212. Popular Culture. (3) Analysis of popular forms of everyday life in America. Fashions, fads, entertainment trends, automobiles, television programming, advertising and similar topics from the sublime to the ridiculous are analyzed for their underlying significance as part of American culture. Emphasis is upon the interaction of popular culture with social structure to understand the impact of each upon the other.

SOC 232. Marriage and the Family. (3) Prerequisite: SOC 151. Examination of marriage and family as a social institution in contemporary society and how relationships are shaped by institutionalized patterns of interaction. Equal emphasis given to premarital, marital and familial roles in a context of changing social values.

SOC 271. Social Problems. (3) Prerequisite: SOC 151. Analysis of contemporary social problems and their consequences for mankind, with special emphasis upon the problems of American society.

SOC 290. Topics in Sociology. (1-3) Prerequisite: Introductory sociology or consent of the Department. Examination of specialized topics in sociology. May be repeated for credit as topics vary.

Courses for Advanced Undergraduates (and Graduates as Designated)

SOC 310. American Minority Groups. (3) Prerequisite: SOC 151. Analysis of the relations between dominant and minority groups in American society with special emphasis on the establishment, maintenance and decline of dominance involving racial, ethnic and religious minorities.

SOC 311. Social Inequality. (3) (3G) Prerequisite: Introductory sociology. Cross-cultural and comparative analysis of the distributive system of societies focusing upon the explanation of inequality among societies and the variations in power, privilege and prestige.

SOC 315. Bureaucracies and Organizations. (3) (3G) Prerequisite: Introductory sociology. Analysis of the structure and dynamics of complex organizations with special attention to rationalization through bureaucracy and the mechanisms of change.

SOC 322. Population and Society. (3) (3G) Prerequisite: SOC 151 or consent of instructor. Cross-cultural comparison of populations, their growth, composition and distribution for the past, present and future. Emphasis upon those factors creating variations in the fertility, mortality and migration of populations. Introduction to basic demographic measures and sources of demographic data used in community analyses is included.

SOC 324. Sociology of the Community. (3) (3G) Prerequisite: SOC 151. Analysis of the concept of community, methods for delineating and describing the dimensions of community and examination of planned and unplanned community change.

SOC 325. Urban Sociology. (3) Prerequisite: SOC 151 or consent of instructor. Analysis of the origin and development of the urban community with a focus upon social organization, ecology, demographic composition, social psychological attributes and social problems of urban life. A cross-cultural perspective is emphasized.

SOC 343. Social Movements. (3) Prerequisite: SOC 151. Analysis of collective behavior with emphasis on the ideology, development and organizations of movements seeking or resisting change in the social order.

SOC 353. Evolution of Sociological Inquiry. (3) Prerequisite: Introductory sociology. Examination of the origins and evolution of fundamental sociological concepts, theories and research procedures and their contributions to sociological inquiry.

SOC 354. Theories and Their Construction. (3) (3G) Prerequisite: SOC 353. Systematic analysis of competing and complementary theories in contemporary sociology and the acquisition and application of the basic skills of theory construction.

SOC 355. Sociological Research Methods. (4) (4G) Prerequisite: SOC 353. Examination and application of research principles and techniques for the verification of sociological propositions, including the formulation of the problem, the design of the research, and the collection, analysis and interpretation of the data. Three hours of lecture-discussion and a laboratory period of two hours each week.

SOC 356. Quantitative Sociological Analysis. (4) Prerequisite: SOC 355 or consent of the instructor. Examination of concepts and procedures pertaining to sociological inquiry with emphasis on data processing, measurement theory and quantitative models of social analysis. Three hours of lecture-discussion and two hours of laboratory each week.

SOC 361. Socialization and Society. (3) (3G) Prerequisite: SOC 151. Analysis and process of socialization and social interaction and the sociocultural dimension of personality.

SOC 362. Social Control. (3) Prerequisite: SOC 151. Analysis of the relation of social norms to conforming and deviant behavior with special attention to public opinion, propaganda and other techniques of social control.

SOC 363. Sociology of Small Groups. (3) (3G) Prerequisite: SOC 151 or consent of the instructor. Systematic analysis and application of theoretical and empirical research pertaining to the behavior of small groups.

SOC 372. Sociology of Deviant Behavior. (3) (3G) Prerequisite: SOC 151. Examination of the forms, causes, consequences and control of deviant behavior.

SOC 373. Juvenile Delinquency. (3) (3G) Prerequisite: SOC 151. Sociological analysis of problems of youth crime with special attention to major sociological and social psychological theories of delinquency causation.

SOC 420. Seminar in the Sociology of Housing. (3) (3G) Prerequisite: SOC 151 or consent of instructor. Examination of housing as both a social and physical variable in human life. Topics to be examined from a cross-cultural perspective include housing as a social problem, housing and its relationship to social policy, community development, social stratification, life cycle, racial-ethnic relations, individuals and neighborhoods, tenant-landlord relations and alternatives in the future.

SOC 432. Seminar in the Changing American Family. (3) (3G) Prerequisites: Introductory sociology, SOC 232 or equivalent, or consent of instructor. Examination of the relationship between the family system and other institutions in the social system and how this relationship has changed over time. Emphasis is given to the integration of occupational, parental and marital roles.

SOC 435. Sociology of Education. (3) (3G) Prerequisite: SOC 151 or consent of the instructor. Analysis of the educational institution with emphasis upon the school class as a social system and the school as a social environment and a complex organization.

SOC 456. Seminar in Advanced Sociological Inquiry. (3) (3G) Prerequisite: Completion of all other required core courses. Synthesis and utilization of basic sociological principles and techniques in supervised independent theorization and verification, including the presentation of projects to seminar members and departmental faculty for evaluation and criticism.

SOC 461. Human Sexuality. (3) (3G) Prerequisite: Introductory sociology or consent of the instructor. Examination of social and social-psychological dimensions of human sexuality. Designed to stimulate the exploration of sexual values, both the student's own and those of others, and to provide a sociological understanding of the social and cultural setting in which these values are manifested.

SOC 463. Sociology of Sex Roles. (3) (3G) Prerequisite: SOC 151 or consent of the instructor. Examination of changing sex role behavior in American society. Emphasis is given to socialization into sex roles, institutional sexism and alternative sex role models.

SOC 473. Criminology. (3) Prerequisite: Introductory sociology. Analysis of sociological and psychological research pertaining to crime and crime statistics including historical and contemporary theories of criminal behavior and modern trends in criminal law and corrections.

SOC 480. Internship in Sociology. (3-6) Prerequisite: Consent of the Department. Research and/or in-service training experience for selected students in cooperating community organizations. Content of each internship will be based upon a contractual agreement between the student, department and community organization. Amount of credit to be determined by the nature and extent of the internship assignment. May be repeated for credit up to a maximum of six semester hours. Offered only on a *Pass/No Credit* basis.

SOC 490. Topics in Sociology. (1-3) (1-3G) Prerequisite: Consent of the Department. Examination of specialized sociological topics selected by students and faculty. May be repeated for credit. (A listing and brief description of specific courses offered each term is available from the departmental office.) Examples of courses which have been offered under this designation are: Aging and Services to the Aged, Relations in Schools, Social Science Research for Educators, Social Services for Children and Youth.

SOC 495. Directed Individual Study. (1-4) (1-4G) Prerequisite: Consent of the Department. Supervised investigation of a sociological problem of special interest to the student. May be repeated for credit.

SOC 510. Intergroup Relations. (3) (3G) Prerequisite: Introductory sociology or consent of the instructor. Analysis of the social and social-psychological determinants of intergroup relations through an examination of labor-management relations, race relations, relations between social classes, ethnic, national and religious groups, and other major social groupings in contemporary societies. Attention will be given to processes which introduce change in patterns of relations.

SOC 525. Seminar in Urban Sociology. (3) (3G) Prerequisite: SOC 151 or consent of instructor. Seminar concerned with the development and change of urban societies utilizing cross-cultural comparisons and focusing upon social organization, ecology, demographic composition, social psychological attributes and social problems of urban life.

Speech

Lecturer: Ross

(For further information about Speech courses, consult the English Department.)

SPH 101. Introductory Speech. (3) For students who want to upgrade their oral communication skills. Opportunity to study theory and to practice for improvement is offered in the areas of voice and articulation, interpersonal communication, small group communication and public speaking. Special emphasis is placed on message preparation and on delivery before an audience.

SPH 203. Argumentation. (3) Introduction to the theory and skills of basic argumentation. Areas covered include research techniques, evidence, reasoning, argument construction, delivery skills and ethics. The aim of this course is not only to aid students in their preparation for careers, but to enable them to be better consumers of rhetoric on a day to day basis as well.

College of Business Administration

Dean: Professor Neel

Objectives: The College of Business Administration is committed to excellence in instruction at both the undergraduate and the master of business administration levels. The College provides a broad educational base which will help prepare the student for responsible leadership in business and professional life. The academic programs and methods of instruction are designed to maximize the opportunities for each student to develop his/her full intellectual potential.

In addition to the teaching mission, the College of Business Administration has a research role and a service role. Through research, publication and participation in the programs of professional organizations, the College seeks to make a contribution to the advancement of knowledge and to assist faculty members in their own professional development.

The service thrust covers both the internal dimension within the University and the external, or public, dimension. The College faculty are active in the committee and other service work of their respective departments, the College and the University. The College faculty also provide their expertise to a wide range of community, business and governmental groups and organizations.

Programs. The College of Business Administration has over 2,300 students enrolled in its academic programs. These are the bachelor of arts in business administration; the bachelor of science in accounting, which offers full academic preparation for the Certified Public Accountant (CPA) designation; and the bachelor of arts in economics.

The College also offers a master of business administration program at the graduate level. This program is designed for men and women who are fully employed and must undertake graduate study on a part-time basis.

Programs are designed so that transfer students from community colleges and other institutions may enter the program and complete their degree requirements in the last two years of their college work. Students planning to take their first two years in community colleges should inform their adviser or counselor of their intent to apply to UNCC so that their program may be tailored to facilitate transfer.

Satisfaction of Prerequisites and Enrollment in Upper Division Courses. Students must meet the prerequisites stated for the courses in the College of Business Administration. Enrollment in the upper division (300 and 400-level) courses offered by the College of Business Administration is open to juniors and seniors only.

Evening Courses and Summer Sessions. All courses required in the Business Administration and the Accounting degree programs are offered in the evening, as well as during the day. The master of business administration program is offered entirely in the evening. A full program of summer offerings is also available.

Scholarships. There are a number of scholarships available for both men and women studying in the College of Business Administration. Several of the scholarships are designated to recognize academic excellence in the junior and senior years. *Further information can be obtained from the Financial Aid Office at UNCC.*

Careers. Graduates in the Business Administration program may enter careers in: sales and marketing, banking and finance, transportation, personnel, manufacturing, insurance, public administration, management and real estate.

Accounting graduates find careers in: public accounting, internal auditing, government accounting, controllership and management.

Economics graduates may enter careers in: business economic analysis, teaching, research and government.

MASTER OF BUSINESS ADMINISTRATION

The primary objective of graduate study in business is to develop candidates for leadership positions in complex organizations of the future. The basic philosophy of the graduate program recognizes that managerial procedures and practices of today are subject to rapid change. For this reason, the program emphasizes a process of perceiving, analyzing and solving administrative problems. The burden is placed on the student to determine relevant facts, evaluate alternatives and prepare for action. Organizations are analyzed as behavioral, financial and technological units operating in an environment with changing regional, national and international dimensions. Candidates are encouraged to anticipate, innovate and adjust to this dynamic environment.

The curriculum stresses the universal characteristics of management and their application in various types of organizations. Fundamental problems are examined from an economic, information systems and behavioral point of view.

Courses in economic analysis and managerial accounting focus on financial performance and resource allocation, while those in administrative practices emphasize individual and group conduct. Courses in information analysis make possible the integration of the economic and behavioral aspects of administrative problems with the decision-making requirements of practicing managers. These areas along with courses in the functional areas of business, marketing, production and finance, and a course in legal environment constitute the core courses in basic analysis required of all candidates.

After completing the basic analysis sequence, a student selects (2) additional courses from among the graduate courses offered by the College of Business Administration. This provides an opportunity for students to choose courses of particular interest to them.

The final courses in the program deal with management policy and strategic planning. These courses are designed to integrate the knowledge and skills of analysis developed in the preceding courses of the MBA program and to assure that the student can demonstrate application in a comprehensive manner through a study of cases, current information on company and industry applications, and through a major written project.

The methods of instruction adopted in the program are designed to prepare a candidate for the realities of a management career. These methods include simulations, role playing, written communications, lectures and the case study method. It is the ability to analyze, to judge trends, to weigh diverse influences that leads to sound judgment. This capability can be developed only through practice. The methods of instruction employed in the program are designed to provide such practice.

Courses in the program are scheduled to accommodate part-time students. Classes are held in the evening throughout the year. Part-time students may enroll in two courses during the fall and spring semesters. A part-time student may complete the program in three years. Full-time students may enroll in four courses during the fall and spring semesters and may complete the program in two years, depending upon scheduling of courses.

The program requires a minimum of 39 semester hours of graduate credit in approved courses.

Program Design

A. Preparation

Candidates for the master of business administration must present evidence of preparation in accounting, calculus and statistics, economics and computer science before beginning the graduate course work.

B. Basic Analysis

All candidates are required to take the following basic core courses (27 hours):

Mgt. 611	Economic Analysis I
Mgt. 612	Economic Analysis II
Mgt. 622	Quantitative Analysis for Business
Mgt. 631	Managerial Accounting
Mgt. 641	Production Management
Mgt. 652	Financial Management
Mgt. 661	Administrative Practice I
Mgt. 671	Marketing and Logistics
Mgt. 681	Legal Environment

C. Elective Courses

After completing the basis analysis sequence, candidates must select two additional courses (six hours) from among the following courses:

Mgt. 651	Financial Markets
Mgt. 621	Information Systems
Mgt. 653	Investment Management
Mgt. 662	Administrative Practice II
Mgt. 672	Marketing Research and Forecasting
Mgt. 673	Marketing Communication and Promotion
Mgt. 690	Directed Individual Study
Mgt. 692	Business and Society

D. Capstone Courses

The final courses required of all candidates are:

Mgt. 694	Management Policy
Mgt. 696	Strategic Planning

COURSE DESCRIPTIONS

Courses for Graduate Students Only

MGT 611. Economic Analysis I. (3G) A study of the method of economic analysis employed in the examination of the external economic environment of the organization. The economic factors determining changes in national income and levels of economic activity in the nation, region and industry are considered and analyzed. Analytical concepts and techniques for forecasting general economic and industry activity are developed, and the relevance of such techniques for administration of organizations is examined.

MGT 612. Economic Analysis II. (3G) This course examines the operation of the pricing system within the various market structures of the economy. Included are the price and output decision of the firm under conditions of pure competition, monopoly, oligopoly and monopolistic competition. The problems of economic concentration, resource allocation and the role of government in a market economy are studied.

MGT 621. Information Systems. (3G) A study of the planning, design, implementation and control of management information systems. Emphasis is placed on the merging utilization of more advanced information systems, the role of information management process and the networks necessary for efficient transmittal of information to the proper sources. Of particular importance is the generation and analysis of data for decision making.

MGT 622. Quantitative Analysis for Business. (3G) An analytical approach to the management process. Generalized models for decision making will be explored with major emphasis placed on the application of the scientific method to management problems.

MGT 631. Managerial Accounting. (3G) A study of management's use of accounting. Topics include profit planning and control, evaluation of performance, cost analysis and income tax planning.

MGT 641. Production Management. (3G) This course draws upon the economic, behavioral, and quantitative disciplines to develop one's ability to manage in or around the operating systems of organizations — both manufacturing and non-manufacturing. A framework for analysis in developed and applied through cases, to decisions of capacity utilization, facilities planning, technological changes and others.

MGT 651. Financial Markets. (3G) A broad survey of both the money and capital markets. Interest rate determination and determinants of money supply and demand will be stressed. Emphasis will also be given to principal instruments within the interactions between the money and capital markets.

MGT 652. Financial Management. (3G) Theory and practice of corporate finance including asset management, cost of capital and capital budgeting, optimization problems and socio-economic aspects of financial management. Computer technology will be employed.

MGT 653. Investment Management. (3G) Theory and practice of investment problems of individuals and fund managers. Investment analysis, elements of the investment process and criteria for investment decisions will be emphasized with employment of the computer as relevant.

MGT 661. Administrative Practice I. (3G) The purpose of this course is to develop a student's ability to analyze the conduct of people in organizations. Problems in motivation, leadership, conflict management, group dynamics and organization structure are stressed.

MGT 662. Administrative Practice II. (3G) This course is designed to cover topics in organizational development. Specific subjects covered are management by objectives, performance determinants and appraisal, design of complex organizations, team building and organizational change.

MGT 671. Marketing and Logistics. (3G) This course draws upon the disciplines of economics, the behavioral sciences and mathematics to develop perception and skill in marketing and logistics management. The focus is upon the decisions required to effectively balance the objectives and resources of the firm in developing successful marketing and logistics strategies. Case studies, simulations and computer techniques will be used in this course.

MGT 672. Marketing Research and Forecasting. (3G) This course will explore the techniques and methodology used in the collection, analysis and interpretation of economic, demographic and sociological data for use in managerial decision-making. The techniques of economic, industry and sales forecasting will be developed.

MGT 673. Marketing Communication and Promotion. (3G) The problems of mass communication, advertising, promotion and public relations will be explored in depth. The legal and ethical problems involved in this area will be analyzed. Case studies will be used.

MGT 681. Legal Environment. (3G) An intensive study of the common and statutory law which is applicable in a business decision making context. Emphasis will be placed upon Federal Regulatory Law and the role and functioning of the Federal Regulatory agencies in supervising the scope of permissible business activities.

MGT 690. Directed Individual Study. (3-6G) This course is designed to permit a student to undertake directed individual study and in-depth analysis of a special area of management, economics, business or accounting. The course may be used to satisfy up to six semester hours of graduate credit requirements in the Master of Business Administration degree program and may be repeated for credit provided a different area of study is undertaken each time. Permission of a member of the graduate faculty who would direct the study must be secured before registering for the course.

MGT 694. Management Policy. (3G) The purpose of this course is to develop an understanding of the need to integrate the functonal activities of the firm in planning corporate objectives and achieving operating results. Throughout the course, attention is given to developing the ability to identify issues and problems of the firm as a whole, to explore alternatives and to make decisions which recognize the interrelationships of the functional specialties within the total organization. The student is expected to apply and integrate the knowledge and skills of analysis developed in the preceding courses of the MBA program.

MGT 696. Strategic Planning. (3G) This course focuses on the functioning of the firm or organization as a whole within a rapidly changing environment. Changing industry conditions, as well as technological, social, political and economic changes affect the firm as it plans for continuity of operation. Plans, strategies and implementing policies must be developed if the firm is to continue. Strategic planning techniques being developed by researchers and by corporate practitioners are studied. A major objective of the course is to assure that the student completing the professional MBA program can demonstrate application in a comprehensive manner. This is done through a study of cases, current information on company and industry applications and through a major written project.

Department of Accounting

Chairperson: Professor Turner
Associate Professors: Godfrey, Guinn, Hinson, Jolly, Malmgren, Williamson
Assistant Professor: Bhamornsiri
Assistant Professor Emeritus: Higgins
Distinguished Lecturer: Wallace
Lecturer: Odom
Lecturers (part-time): Booth, Fligel, Hockfield, Johnson, Prewitt, Ross, Sanders, Taylor

The objective of the accounting program is to educate students to commence and continue to develop in a wide range of professional accounting careers. This program provides conceptual and technical knowledge in the accounting and business areas which will serve as a foundation for accounting career development.

A major in accounting leading to the B.S. degree consists of 27 semester hours of accounting courses, 36 semester hours of related work in business administration, economics and mathematics as listed below.

I. *Accounting*

Principles of Accounting (ACC 201 and 202) ..... 6 hrs.
Managerial Cost Accounting (ACC 371) ..... 3 hrs.
Intermediate Financial Accounting (ACC 374 and 375) ..... 6 hrs.
Specialized Accounting Topics (ACC 471) ..... 3 hrs.
Internal Control and Auditing (ACC 475) ..... 3 hrs.
Federal Taxation (ACC 477 and 478) ..... 6 hrs.

II. *Business Administration*

Marketing Management (BUS 310) ..... 3 hrs.
Financial Management (BUS 320) ..... 3 hrs.
Business Law I (BUS 350) ..... 3 hrs.
Operations Management (BUS 300) ..... 3 hrs.
Management of Human Resources (BUS 340) ..... 3 hrs.
Business Policy (BUS 460) ..... 3 hrs.

III. *Economics*

Principles of Economics (ECO 201 and 202) ..... 6 hrs.

IV. *Mathematics*

Basic Concepts of Mathematics (MAT 101) ..... 3 hrs.
Calculus (MAT 120) ..... 3 hrs.
Algorithmic Languages (CSC 100) ..... 3 hrs.
Statistics (MAT 122) ..... 3 hrs.

Students who complete a major in accounting will meet the educational requirements to take the North Carolina Certified Public Accountant Examination.

In addition to the University requirements of a 2.0 minimum quality point average, a student must have at least a 2.0 quality point average in all 300 and 400-level required accounting courses in order to obtain a B.S. Degree in Accounting.

RECOMMENDED CURRICULUM FOR THE B.S. DEGREE IN ACCOUNTING

Freshman Year

English 101	3	English 102	3
Laboratory Science	4	Laboratory Science	4
Mathematics 101	3	Mathematics 120	3
Humanities	3	Humanities	3
Elective (1)	2	Elective (1)	2
	15		15

Sophomore Year

Principles of Economics (ECO 201)	3	Principles of Economics (ECO 202)	3
Algorithmic Languages I (CSC 100)	3	Statistics (MAT 122)	3
Principles of Accounting (ACC 201)	3	Principles of Accounting (ACC 202)	3
Elective (2)	6	Elective (2)	6
	15		15

Junior Year

Intermediate Financial Acct. I (ACC 374)	3	Intermediate Financial Acct. II (ACC 375)	3
Marketing Management (BUS 310)	3	Operations Management (BUS 300)	3
Management of Human Resources (BUS 340)	3	Managerial Cost Acct. (ACC 371)	3
Electives (2)	6	Electives (2)	6
	15		15

Senior Year

Business Law I (BUS 350)	3	Internal Control and Auditing (ACC 475)	3
Income Taxation for Individuals (ACC 477)	3	Advanced Income Taxation (ACC 478)	3
Financial Management (BUS 320)	3	Electives (3)	9
Specialized Acct. Topics (ACC 471)	3		
Business Policy (BUS 460)	3		
	15		15

A minimum of 12 hours of electives must be taken from courses other than those offered in the College of Business Administration. Behavioral sciences and communication courses are recommended for inclusion in the 12 hours of electives. At least six hours of electives must come from courses inside the College of Business Administration.

Students planning to take the CPA Exam are encouraged to take the following courses in their senior year:

Accounting for Not-for-Profit Org. (ACC 300) ..... 3 hrs.
Business Law II (BUS 450) ..... 3 hrs.
Management Science (BUS 431) ..... 3 hrs.
CPA Preparation (ACC 479) ..... 3 hrs.

COURSE DESCRIPTIONS

ACC 201. Principles of Accounting I. (3) A study of fundamental accounting principles, with emphasis on managerial use of accounting data and analysis of financial statements. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

ACC 202. Principles of Accounting II. (3) Prerequisite: ACC 201. A study of basic accounting theory, corporate financing and reporting; financial planning; and an introduction to managerial accounting. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

ACC 300. Accounting for Not-for-Profit Organizations. (3) Prerequisite: ACC 201 or equivalent. Accounting for governmental and other not-for-profit entities. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 330. Statistics and Computers in Accounting. (3) Prerequisites: MAT 122, CSC 100 and ACC 202. A survey of statistical sampling techniques used in accounting. An introduction to accounting EDP systems, with particular emphasis on internal controls and computer auditing techniques. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 371. Managerial Cost Accounting. (3) Prerequisite: ACC 202. An analysis of the uses of accounting data in planning, controlling and decision-making processes of business enterprises. Three lecture hours and two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 374. Intermediate Financial Accounting I. (3) Prerequisite: ACC 202 with a grade of *C* or better. An in-depth analysis of the requirements of outsiders (investors, auditors and governments) for information about the status and operations of firms. The application of various theories and concepts will be stressed. Three lecture hours and two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 375. Intermediate Financial Accounting II. (3) Prerequisite: ACC 374 with a grade of *C* or better. A continuation of ACC 374 with an emphasis on accounting problems peculiar to corporate organizations and governmental units. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 385. Federal Income Taxation. (3) Prerequisite: ACC 202. Open to non-accounting majors only. A study of federal income tax laws and regulations applicable to individuals and business organizations. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 471. Specialized Accounting Topics. (3) Prerequisite: ACC 375 with a grade of C or better. Specialized accounting topics with emphasis on consolidated statements. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 475. Internal Control and Auditing. (3) Prerequisite: ACC 375 with a grade of C or better. An analysis of the accounting control systems and the independent auditor's examination of the system and other evidence as a basis for expressing an opinion on financial statements. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 477. Income Taxation for Individuals. (3) Prerequisite: ACC 202 with a grade of C or better. A study of federal income tax laws and regulations applying to individuals. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 478. Advanced Income Taxation. (3) Prerequisite: ACC 477. A study of federal income tax laws and regulations applying to partnerships, corporations, estates and trusts, and estate, gift and inheritance taxes. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 479. CPA Preparation. (3) Prerequisite: ACC 471. Intensive study of principles and techniques involved in the solution of advanced accounting problems encountered in public accounting practice. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ACC 490. Current Developments in Accounting. (1) (2) or (3) May be repeated for credit. Prerequisite: Consent of the Department. A research project will be required. Topics will be selected from internal and external auditing, governmental accounting, income taxes, managerial accounting and accounting theory.

Department of Business Administration

Chairperson: Associate Professor Stevenson
Rush S. Dickson Professor of Finance: Walls
Professors: Conrad, Moss, Palmer
Associate Professors: Barnes, Geurin, Sage, Stevenson, Trosch, Williams
Assistant Professors: Conboy, Kennedy, McDonald, Miller, Nunnally, O'Brien, Paksoy, Ponthieu, Robbins, Swayne, Watson
Lecturers: Baxter, Bowers, Cox, Harris, Kerr, Labovitz

B.A. IN BUSINESS ADMINISTRATION

The goals of the undergraduate program in business administration are to provide graduates with:

1. Specialized knowledge and skills enabling them to perform with competence upon graduation and progress rapidly in their profession.
2. Broad knowledge of business organization and processes enabling them to see individual functions from the perspective of the organization and to facilitate constructive change.
3. The qualities traditionally attributed to a liberal arts education at the university level, including a disciplined and inquiring mind, and understanding of one's culture and self.

To this end, the Department offers a curriculum leading to the bachelor of arts degree in business administration composed of the following major components:

1. *Prerequisites:* Courses necessary as preparation for business courses. To be completed before enrolling in business courses: (MAT 101, 120, 122; ECO 201, 202; ACC 201, 202).
2. *The Business Core:* Business, Accounting and Economics courses designed to provide essential understanding of business processes and organization.
3. *Business Electives:* Courses designed to provide depth in specialized areas.
4. *Other Electives:* Throughout the undergraduate curriculum, a student can, and is encouraged to, elect courses outside the business area in following a personal interest or course of study which will add breadth and depth of understanding and complement the business degree. *General Electives* offered by the Department can also be applied to degree requirements.

To complete a program a candidate must complete the following courses:

1. **PREREQUISITES** — *TO BE COMPLETED PRIOR* to enrollment in Business Administration Department courses.

   a. *Mathematics*

   Basic Concepts of Mathematics (MAT 101) ..... 3 hrs.
   Calculus (MAT 120) ..... 3 hrs.
   Elements of Statistics (MAT 122) ..... 3 hrs.

   b. *Economics*

   Principles of Economics (ECO 201 and 202) ..... 6 hrs.

   c. *Accounting*

   Principles of Accounting (ACC 201 and 202) ..... 6 hrs.

2. **THE BUSINESS CORE** — To be substantially completed before enrolling in *Business Elective* courses.

   a. *Specialized and Staff Areas:* To be substantially completed before enrolling in *Functional Area* courses.

   Managerial Cost Accounting (ACC 371) ..... 3 hrs.
   Economics of the Firm (ECO 325) ..... 3 hrs.
   Management Information Systems (BUS 330) ..... 3 hrs.
   Management of Human Resources (BUS 340) ..... 3 hrs.
   Business Law I (BUS 350) ..... 3 hrs.
   Business Communications (BUS 360) ..... 3 hrs.

   b. *Functional Areas:* To be completed before enrolling in *Business Policy*.

   Operations Management (BUS 300) ..... 3 hrs.
   Marketing Management (BUS 310) ..... 3 hrs.
   Financial Management (BUS 320) ..... 3 hrs.

   c. *Capstone Course:* Integrates all other courses from viewpoint of chief executive officer.

   Business Policy (BUS 460) ..... 3 hrs.

3. **BUSINESS ELECTIVES:**
   To be selected by student for professional competence in selected areas ..... 9 hrs.

   TOTAL HOURS REQUIRED ..... 60 hrs.
   In computing the quality point average in the major, all required courses are included.

4. **OTHER ELECTIVES:** 120 credit hours are required for graduation. The 60 hours of other electives may be used as the student and his adviser deem advisable in designing a curriculum to meet student objectives. Possibilities include a concentration in areas such as the physical and social sciences or other professional schools. In this way, the student can pursue non-business subjects in depth either to satisfy personal interest or augment the business degree for professional purposes. At least 33 hours of these electives must be taken from courses offered outside the College of Business Administration and at least three hours of these electives must be taken from courses offered inside the College of Business Administration.

TYPICAL PROGRAM FOR BUSINESS ADMINISTRATION

Most students enter the business program either as freshmen or as juniors transferring from another institution. Many work while attending school, others do not. A significant number wish to complete the degree as quickly as possible while the circumstances of others dictate or permit a less intensive schedule.

The needs of transfer students are quite varied because of transferred credits, lack of prerequisites and other factors. It is therefore difficult to describe typical transfer student programs.

The needs of entering freshmen are more predictable, however, and the following program illustrates how an entering freshman might plan to complete the curriculum in four years.

FOUR-YEAR PROGRAM

Freshman Year

Fall		Spring	
*English 101	3	*English 102	3
*Mathematics 101[1]	3	*Mathematics 120[1]	3
*Lab Science	4	*Lab Science	4
*Humanities	3	*Humanities	3
Elective	2	Elective	2
	15		15

Sophomore Year

*Economics 201[1]	3	*Economics 202[1]	3
Accounting 201[1]	3	Accounting 202[1]	3
Electives	9	Mathematics 122[1]	3
		Electives	6
	15		15

Junior Year

Economics 325	3	Business 340	3
Accounting 371	3	Business 300	3
Business 330	3	Business 310	3
Business 350	3	Business 320	3
Business 360	3	Elective	3
	15		15

Senior Year

Business Electives	9	Business 460[2]	3
Electives	6	Electives	12
	15		15

*General Degree Requirement

[1] Prerequisites for upper division required business courses.

[2] To be taken after all 300-level required business core courses have been fulfilled.

COURSE DESCRIPTIONS

Courses for Advanced Undergraduates

CORE COURSES

BUS 300. Operations Management. (3) This course will provide an introduction and development of the management functions in manufacturing and non-manufacturing organizations. It will take a systems approach in providing an insight into the organizational environment, the basic operating functions, the problems and decisions a manager encounters and the solution techniques and models with which he deals. Computer application will be included where appropriate.

BUS 310. Marketing Management. (3) The objective of this course is to acquaint the student with the marketing concept and the various aspects of marketing and its interface with the external environment and other functional areas of the organization. It is aimed at developing breadth in the subject and providing a foundation for further study in marketing. At the same time it will have wide enough coverage to stand alone for those who do not wish to concentrate in marketing.

BUS 320. Financial Management. (3) Principles and problems of financial aspects of managing an individual company. Particular emphasis on financial analysis for use in managing capital structure, least-cost asset management, planning and control. Computer application will be included where appropriate.

BUS 330. Management Information Systems. (3) The focus of the course is on the impact of information systems on management decision-making activities. Principles of the structure and analysis of information flows within an organization are studied. Emphasis is placed on data base accumulation and generation, capabilities of information processing, system function (e.g., file creation, report generation, etc.), and evaluation and modification of information systems.

BUS 340. Management of Human Resources. (3) A managerial perspective of the influence of leadership, motivation, group dynamics, structure, communications, conflicts and change on effective utilization and development of human resources. Emphasis is on applications in business, but the approach is also appropriate for management of hospitals, schools and other nonprofit organizations.

BUS 350. Business Law I. (3) A study of the legal setting of business and its relationship to the business firm. Topics covered include: the nature of law and the court system, torts, contracts, commercial paper, consumer credit, sales, partnerships, corporations, the employer-employee relationship, real and personal property.

BUS 360. Business Communications. (3) The nature and problems of individual, interpersonal and organizational communication in business. Various verbal techniques such as presentations, graphics, public speaking and writing will be developed and practiced for effective organizational and individual performance.

BUS 460. Business Policy. (3) Prerequisites: All other required business core courses. (Accounting majors are required to take as prerequisites only those Business Administration and Economics courses required for the B.S. degree in accounting.) Concerns the role of top management of the firm in integrating internal functions and environmental forces. Emphasis on defining economic, technical, ethical, political and social factors affecting the firm and their consideration in setting goals and operating policies.

BUSINESS ELECTIVES

1. Functional and Staff Areas

BUS 401. Advanced Operations Management. (3) Prerequisite: BUS 300. This course through cases and/or management simulations will enable the student to apply the knowledge attained in Operations Management. The student, through an application forum, should develop in greater depth his/her understanding of the operating functions of an organization.

BUS 410. Marketing Research and Analysis. (3) Prerequisite: BUS 310. The research course will provide the student with an understanding of marketing research and its usefulness in the organization. The course will deal with scientific marketing research methods with emphasis on collection, analysis and interpretation of data as applied to the solution of marketing problems.

BUS 411. Promotion. (3) Prerequisite: BUS 310. This course will cover all areas of marketing promotion, including such topics as advertising, media selection, packaging and forms of sales promotion. This course will offer basic skills and techniques to allow the student to enter careers in advertising or media.

BUS 412. Retailing Management. (3) Prerequisite: BUS 310. Presents retailing as a part of the marketing distribution phase of a total interacting marketing system. Key concepts covered include consumer and market analysis, store location, store layout, merchandising, pricing and promotional issues and problems. Also considered are legal and environmental implications. The emphasis is on application of class concepts through case analysis and class discussion.

BUS 413. Personal Selling and Sales Management. (3) Prerequisite: BUS 310. An overview of the skills and knowledge involved in individual selling and the management of sales programs. The course emphasizes sales and sales management theories and their applications.

BUS 420. Financial Analysis. (3) Prerequisite: BUS 320. Application of appropriate theory and techniques to financial analysis for internal and external uses. Material taught in previous courses is integrated in analysis of individual firms for purposes such as determining debt capacity and stock valuation. Focus will vary from that of internal management to creditors and security analysis.

BUS 421. Financial Institutions and Markets. (3) Prerequisite: BUS 320. A study of financial institutions and money and capital markets which considers their roles in the intermediation process. Special emphasis is focused on the comparative financial policies of financial institutions considered in the context of their market environments.

BUS 422. Investments. (3) Prerequisite: BUS 320. Major topics are security analysis and portfolio management. The viewpoint is that of the investment professional concerned with evaluation of individual securities and management of security portfolios.

BUS 423. International Financial Management. (3) Prerequisite: BUS 320. Viewpoints are those of the senior financial officer of a corporation involved in international business and of the international officer of a commercial bank. Topics include the financing of exports and imports, financing of foreign operations, problems of foreign exchange rates and the impact of accounting procedures on financial management.

BUS 430. Advanced Business Analysis. (3) Prerequisite: BUS 300. A study of more advanced probabilistic business problems with extensive use of canned computer programs and preparing system models. The course will center on the application of decision theory to business problems.

BUS 431. Management Science. (3) Prerequisite: BUS 300. An analytical approach toward understanding the management process and solving management problems. Emphasis will be placed on exploring existing models, but the student should develop an insight for problem development and model building.

BUS 440. Leadership, Performance, Effectiveness and Change. (3) Prerequisite: BUS 340. The nature and major dimensions of supervising in work organizations (business, government, hospitals, educational, etc.) in a changing environment. Emphasis on leadership theories and role functions in order to identify measure and predict managerial effectiveness. The role of a leader as a change agent is particularly stressed. Methods and techniques of management and organizational development will be reviewed and utilized for leader development for optimum benefit to the firm and the individual leader. Case analysis and role play exercises used to simulate actual problems.

BUS 441. Personnel Administration. (3) Prerequisite: BUS 340. The study of effectively selecting, utilizing, assessing and developing human managers as well as the role of the personnel department in administering human resources in a changing and demanding environment. Experience in developing and utilizing behavioral science research methods to assess effectiveness.

BUS 450. Business Law II. (3) Prerequisite: BUS 350. The study of the Uniform Commercial Code. Subjects covered include sale of goods, commercial paper, bank deposits and collections, letters of credit, bulk transfers, documents of title, investment securities and secured transactions.

BUS 452. Construction Law. (3) This course examines the legal problems encountered by architects, engineers, contractors, owners, sureties and lenders involved in the construction process. Special emphasis is placed on the legal rights and liabilities of the various participants in construction projects. Claims preparation, negotiation, arbitration and litigation methods of dispute resolution.

2. Other areas

BUS 473. Small Business Management. (3) Consideration of opportunities and obstacles of starting and operating a small business. Emphasis will be on integrating all managerial requirements (financial, marketing, operation, legal, logistics, accounting and behavioral) of owning and operating a small business. Study of opportunities and assistance provided by franchises, federal, state and local agencies. Practice in solving small business problems will be gained through case analysis.

BUS 474. International Business Processes and Problems. (3) An introduction to the process, institutions and problems associated with exporting, importing and management of multinational businesses.

GENERAL ELECTIVES

BUS 351. Employment Law. (3) This course examines the legal principles and legislation which control employment decisions in union and non-union settings. Topics covered include fair employment practices, anti-discrimination law, representation elections, unfair labor practices and dispute settlement processes. (Same as ECO 307.)

BUS 361. Advanced Business Communications. (3) Prerequisite: BUS 360. Advanced course in oral and written communications, with emphasis on tailoring messages to a variety of business situations. Communication theory will be translated into practice through in-class exercises, the delivery of several speeches, and the preparation of an analytical report appropriate to the student's chosen field.

BUS 370. Personal Finance. (3) (No Prerequisite) A course in the management of personal and family financial affairs. Topics include family financial planning and budgeting, saving for financial emergencies, consumer purchases and the use of credit, security and real estate investments, protection against premature death or disability, providing retirement income, insurance needs, income and estate tax planning.

BUS 371. Principles of Insurance. (3) (No Prerequisites) A study of the different types of nonspeculative risks faced by individuals and businesses and the possible alternative methods of treating such risks. An examination of the specific application of these methods in regard to life, health, property, casualty and liability insurance contracts.

BUS 372. Real Estate. (3) (No Prerequisites) A survey of problems involved in the acquisition, management and transfer of real estate. Topics include: Real estate contracts and leases; deeds, mortgages and other liens; real estate brokerage; appraisals and financing; taxation; and governmental regulations.

BUS 390. Topics in Business. (3) Prerequisite: Consent of the instructor. Topics from the area of Management and Administration. The course may be repeated for credit.

BUS 490. Directed Study. (3 to 6 hrs. credit) Prerequisite: Consent of the instructor. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken.

Department of Economics

Chairperson: Professor Davis
Professor: Wubben
Associate Professors: Rogers, Jorgensen, Liner, Johnson, Madsen
Assistant Professors: Amato, Connaughton, Schwarz, Zuber
Lecturer: Schadler

The Department of Economics offers two courses of study leading to a B.A. Degree. Students may select a major in economics with either business administration electives or social science electives.

BUSINESS ADMINISTRATION ELECTIVES

A major in economics, with business administration electives, leading to the B.A. degree consists of 57 hours specified as follows:

I. *Mathematics:*

Basic Concepts of Mathematics (MAT 101)* 3
Calculus (MAT 120)* 3
Elements of Statistics (MAT 122) 3
Introduction to Computers (CSC 101) or
Algorithmic Languages I (CSC 100) 3

II. *Economics:*

Principles of Economics (ECO 201 and 202)** 6
Economics of the Firm (ECO 325) 3
Econometrics (ECO 312) 3
Industrial Organization & Public Policy (ECO 480) 3
Two of the Following
Money and Banking (ECO 315)
Microeconomic Analysis (ECO 322)
Macroeconomic Analysis (ECO 323) 6

III. *Business Administration and Accounting:*

Principles of Accounting (ACC 201 and 202) 6
Financial Management (BUS 320) 3
Two of the Following
Marketing Management (BUS 310)
Business Law I (BUS 350)
Operations Management (BUS 300)
Management of Human Resources (BUS 340) 6

IV. *Economics Electives:*

To be selected by the student from the 300 and 400-level offering of the Department of Economics 12

In computing the quality point average in the major, all required courses except Mathematics 101 and Mathematics 120 are included.

Not more than one grade of *D* will count toward the 57 specified hours for a major in economics. No economics course can be repeated more than once to improve the grade in the course.

*Will satisfy general University requirement for mathematics or foreign languages.
**Will satisfy general University requirement for social science.

It is recommended that students who plan to take graduate work in economics take additional work in mathematics and consult with their advisers concerning the recommendation.

SOCIAL SCIENCE ELECTIVES

A major in economics, with social science electives, leading to the B.A. degree consisting of 57 hours specified as follows:

I. *Mathematics:*

Basic Concepts of Mathematics (MAT 101)* 3
Calculus (MAT 120)* 3
Elements of Statistics (MAT 122) 3
Introduction to Computers (CSC 101) or
Algorithmic Languages I (CSC 100) 3

II. *Economics:*

Principles of Economics (ECO 201 and 202)** 6
Microeconomic Analysis (ECO 322) 3
Macroeconomic Analysis (ECO 323) 3
Econometrics (ECO 312) 3
Evolution of Economic Thought (ECO 477) 3

III. *Social Science Electives:*

Course work to be selected from at least three of the following disciplines: geography, history, political science, psychology, sociology 15

IV. *Economic Electives:*

To be selected by the student from the 300 and 400-level offerings of the Department of Economics 15

In computing the quality point average in the major, all required courses except Mathematics 101 and Mathematics 120 are included.

Not more than one grade of *D* will count toward the 57 specified hours for a major in economics. No economics course can be repeated more than once to improve the grade in the course.

It is recommended that students who plan to take graduate work in economics take additional work in mathematics and consult with their advisers concerning the recommendation.

*Will satisfy general University requirement for mathematics or foreign languages.

**Will satisfy general University requirement for social science.

B.A. IN ECONOMICS WITH BUSINESS ADMINISTRATION ELECTIVES

Freshman Year

English 101	3
Mathematics 101	3
Laboratory Science	4
Humanities	3
General University Elective	2
	15

English 102	3
Mathematics 120	3
Laboratory Science	4
Humanities	3
General University Elective	2
	15

Sophomore Year

Principles of Economics (ECO 201)	3
Introduction to Computers (CSC 101) or Algorithmic Languages I (CSC 100)	3
Principles of Accounting (ACC 201)	3
General University Electives	6
	15

Principles of Economics (ECO 202)	3
Principles of Accounting (ACC 202)	3
Elements of Statistics (MAT 122)	3
General University Electives	6
	15

Junior Year

Econometrics (ECO 312)	3
Microeconomic Analysis (ECO 322) or Money and Banking (ECO 315)	3
Economics Elective	3
General University Electives	6
	15

Economics of the Firm (ECO 325)	3
Macroeconomic Analysis (ECO 323) or Money and Banking (ECO 315)	3
Economics Elective	3
Business Elective	3
General University Elective	3
	15

Senior Year

Industrial Organization and Public Policy (ECO 480)	3
Financial Management (BUS 320)	3
Economics Elective	3
General University Electives	6
	15

Economics Elective	3
Business Elective	3
General University Electives	9
	15

*Will satisfy general University requirement for mathematics or foreign language.

**Will satisfy general University requirement for social science.

B.A. IN ECONOMICS WITH SOCIAL SCIENCE ELECTIVES

Freshman Year

English 101	3	English 102	3
Mathematics 101	3	Mathematics 120	3
Laboratory Science	4	Laboratory Science	4
Humanities	3	Humanities	3
General University Elective	2	General University Elective	2
	15		15

Sophomore Year

Principles of Economics (ECO 201)	3	Principles of Economics (ECO 202)	3
Introduction to Computers (CSC 101) or Algorithmic Languages I (CSC 100)	3	Elements of Statistics (MAT 122)	3
Social Science Elective	3	Social Science Elective	3
General University Elective	6	General University Elective	6
	15		15

Junior Year

Microeconomic Analysis (ECO 322)	3	Macroeconomic Analysis (ECO 323)	3
Econometrics (ECO 312)	3	Economics Elective	3
Social Science Elective	3	Social Science Elective	3
General University Electives	6	General University Electives	6
	15		15

Senior Year

Economics Electives	6	Evolution of Economic Thought (ECO 477)	3
Social Science Elective	3	Economics Electives	6
General University Electives	6	General University Electives	6
	15		15

COURSE DESCRIPTIONS

Courses for Undergraduates

ECO 101. Economics for Non-Majors. (3) This course is designed for students who wish exposure to economic issues without emphasis on theoretical models. The course is centered around contemporary economic issues such as pollution control, consumer protection and the energy crisis. May not be taken for credit if credit has already been received for either ECO 201 or 202.

ECO 201. Principles of Economics-Macro. (3) Topics considered include the scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, and monetary and fiscal policy.

ECO 202. Principles of Economics-Micro. (3) Topics considered include the operation of the pricing mechanism of a market economy, the industrial organization of our contemporary capitalistic economy, problems of economic concentration and of agriculture, the theory of income distribution, international economic relationships and comparative economic systems.

ECO 302. Consumer Economics. (3) Survey of economic analysis applied to a variety of consumer problems. Topics include determination of family income, consumer demand and expenditures, economics of family planning, investment in consumer durables, taxation, and government in protection and regulation. May not be taken for upper-level credit in business or economics, but may be taken for general University credit.

ECO 303. Economic Concepts. (3) Topics considered include both microeconomic and macroeconomic concepts. The scope and method of economics, the pricing mechanism of markets, the industrial organization of the capitalistic system, the measurement of national income, the theory of national income determination, money and banking, and monetary and fiscal policy. Credit will not be given for ECO 303 where credit has been given for ECO 201 or ECO 202.

ECO 305. Industrial Relations. (3) Prerequisite: Introductory course in economics or consent of instructor. Systematic analysis of the sociological, economic and political forces affecting and affected by the work environment. Special emphasis on market structure, the small group, the legal environment and union structure.

ECO 306. Labor Economics. (3) Prerequisite: ECO 201 and 202. The economic implications of basic phenomena in the field of labor, including wage and employment theory, collective bargaining, unemployment and social insurance. Historical and legal forces affecting the work environment are covered.

ECO 307. Employment Law. (3) This course examines the legal principles and legislation which control employment decisions in union and non-union settings. Topics covered include fair employment practices, antidiscrimination law, representation elections, unfair labor practices and dispute settlement processes. (Same as BUS 351.)

ECO 312. Econometrics. (3) Prerequisites: ECO 201, ECO 202, MAT 120, MAT 122, and CSC 100 or CSC 101. This course is designed to analyze economic parameters utilizing various econometric techniques. Techniques and tools of analysis covered include simple and multiple least squares regression, correlation and tests of significance. Other topics include sample survey methods, nonparametric statistics, time series analysis, seasonal indexes and forecasting, and index numbers.

ECO 314. Research Methods. (3) Prerequisite: MAT 101 and 120, ECO 201 and 202. This course is an introduction to research in economics. It acquaints students with the major sources of data and information necessary to conduct research. Emphasis is placed on the application of elementary research methods to economic problems.

ECO 315. Money and Banking. (3) Prerequisite: ECO 201. The characteristics and functions of money in the modern economy. The operation of the U.S. banking system; monetary theory and policy.

ECO 317. Business and Economic Forecasting. (3) Prerequisite: ECO 201. The course analyzes fluctuations in economic activity, including production, employment, prices and industry sales. Topics considered include forecasting methods, business cycle theories, historical record, industry and sales forecasting.

ECO 322. Microeconomic Analysis. (3) Prerequisites: ECO 201 and 202. This course deals with various aspects of microeconomic analysis with its primary emphasis on the theory of utility and production functions. A detailed discussion of resource allocation is undertaken for the determination of optimum output and pricing by a firm operating under various market situations such as pure competition, monopoly, oligopoly and imperfect competition. Emphasis is placed on distribution and welfare theories.

ECO 323. Macroeconomic Analysis. (3) Prerequisites: ECO 201 and 202. Pre- or Corequisite: ECO 312. An analysis of economic aggregates, primarily of income determination. Special emphasis on the development of macroeconomic models and forecasting.

ECO 325. Economics of the Firm. (3) Prerequisites: ECO 202, MAT 120 and MAT 122. A consideration of economic analysis of particular importance to business firms with emphasis on decision-making. Topics covered include demand theory and forecasting; cost theory and analysis; price policies.

ECO 370. Monetary and Fiscal Policy. (3) Prerequisite: ECO 201. An examination of the nature and content of economic behavior of the American economy. This course deals primarily with a critical examination of monetary and fiscal tools and their application with a view toward full employment; economic growth and price stability.

ECO 375. Comparative Economic Systems. (3) Prerequisite: ECO 202. An institutional and theoretical approach to competitive economics. Includes an analysis of the Marxian theoretical system as well as a comparison of capitalism, socialism and communism.

ECO 390. Topics in Economics. (3) May be repeated for credit. Prerequisite: Consent of the Department. Topics from the areas of economic theory, economic development, consumer economics, welfare economics and current economic problems.

ECO 395. Directed Individual Study. (Variable credit 1-3 hours. May be repeated for credit.) Prerequisites: Junior standing and permission of the instructor and the Department. This course involves the independent study of a theoretical and/or policy problem in a special area of economics. The student can pursue a particular program to a depth much greater than can be undertaken within the scope of existing courses. The topics of the investigation may originate from the student or from the faculty member who will supervise the study.

Courses for Advanced Undergraduates (and Graduates as Designated)

ECO 400. Mathematical Economics. (3) Prerequisites: ECO 201, ECO 202 and MAT 120. Both microeconomic and macroeconomic problems are analyzed with quantitative techniques. Emphasis is given to the study of methods for concisely formulating economic relationships. The tools used for finding maximums, minimums and limits to single, recursive and simultaneous economic relationships are studied.

ECO 405. Negotiations and Bargaining Strategy. (3) (3G) Prerequisites: ECO 202, 305. Cost/benefit analysis is applied to different theories of negotiation strategy. Emphasis is on the negotiation of collective bargaining contracts. Topics also covered include the use of arbitration, mediation, conciliation and fact-finding boards to resolve disputes.

ECO 412. Econometrics II. (3) (3G) Prerequisites: ECO 312, and CSC 100 or 101. Tools of analysis developed in this course are more extensive and of a greater depth than those studied in ECO 312 and they allow problems of greater complexity to be studied. Regression and correlation techniques are applied to economic and business problems derived from government and business environments.

ECO 416. Public Finance. (3) (3G) Prerequisites: ECO 201 and ECO 202. The revenue and expenditure problems of governmental units. Intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

ECO 435. Economics of Development. (3) (3G) Prerequisite: ECO 202. Different theories of economic growth and development are examined with a view to their application to varying economic and social systems. Current theoretical models are studied in order to determine their relevance to efficient allocation of resources to both the developed and the developing nations.

ECO 449. Work-Study Program in Economics. (3 to 6 or 3 to 6G hours credit, by determination of Department of Economics). Prerequisites: ECO 201 and ECO 202. Enrollment granted only by permission of a faculty committee from the Department of Economics. Prior to enrollment, plans for the student's work assignments in this course must be completed. Assignments in government utilities, banking and other paid employment must utilize the techniques and principles learned in core requirements in economics. Work assignments require enough faculty contact with the student and employer to insure satisfactory performance by the student. A maximum of three hours can be used to meet upper-level economics elective requirements.

ECO 450. Urban Economics. (3) (3G) Prerequisite: ECO 202. This course analyzes the interrelationships of economic agents in an urban area, emphasizing manufacturing and households. Topics will include economic growth, urban location and land use, public finance and urban transportation.

ECO 455. Regional Economics. (3) (3G) Prerequisite: ECO 202. An examination of factors that determine the economic activities of a region. Particular attention will be paid to issues such as income determination within a region and trade between regions. Other topics include competition between the North and South, government action to encourage regional development and human migration between regions.

ECO 460. Economics of Transportation. (3) (3G) Prerequisite: ECO 202. An economic analysis of the transportation system. Topics covered include: historical development of the various modes, costs and rate-making, regulation and national transportation policy.

ECO 471. Economics of International Trade. (3) (3G) Prerequisite: ECO 201 and ECO 202. An examination of the theory of international trade. Topics covered include determination of international trade patterns, the welfare implications of international trade, the effects of tariffs and quotas, economic integration, and international trade and the LDC's.

ECO 472. Economics of International Finance. (3) (3G) Prerequisite: ECO 201 and ECO 202. A survey of international monetary theory. Detailed discussion is undertaken of exchange rate determination, balance of payments and adjustment, international liquidity, capital movements, international financial organizations and monetary reform proposals.

ECO 477. Evolution of Economic Thought. (3) (3G) Prerequisite: ECO 202. The development of the great economic ideas of value, distribution, employment, with special emphasis on the foundations of classical economic thought.

ECO 480. Industrial Organization and Public Policy. (3) (3G) Prerequisite: ECO 202. An examination of the characteristics of various types of industries — competitive, oligopolistic, monopolistic and monopolistically competitive — and of the questions of public policy in dealing with problems created by industrial concentration.

ECO 481. Energy and Environmental Economics. (3) Prerequisite: ECO 202. This course provides an introduction to the economic issues of both energy and environment. The energy issues include the historical development of energy resources, supply and demand considerations and projections of the future energy balance. Environmental issues treated are externalities, common property resources and government regulation. Policy considerations include a discussion of environmental standards, pollution charges and property rights. Cost-benefit analysis and microeconomic theory are the integral tools applied in this course.

ECO 482. Public Utilities. (3) (3G) Prerequisite: ECO 202. A study of the fundamentals of public utilities, with an emphasis on the theory and methods of rate-making and regulation in public utilities.

ECO 502. American Economics Development. (3) (3G) No prerequisites. A course primarily designed for public school teachers. Emphasis is on issues and examples that lend themselves to classroom presentation in the social studies area of public school curriculum. Includes the development, meaning and functioning of the institutions which characterize the American economy. May not be taken for upper-level elective credit in business or economics but may be taken for general University elective credit by College of Business majors and others. This course shall not be accepted for graduate credit in the MBA.

College of Engineering

Dean: Professor Snyder

The College of Engineering offers two baccalaureate degree programs: the bachelor of science in engineering (BSE) and the bachelor of engineering technology (BET) and a graduate program leading to the degree of master of science in engineering (MSE).

The engineering technology program is designed to provide an opportunity for graduates of two-year associate degree engineering technology programs to continue their education at the baccalaureate level. Details regarding this program are found under the Department of Engineering Technology section of this *Catalog*.

BACHELOR OF SCIENCE IN ENGINEERING

The bachelor of science in engineering curriculum offers professional engineering education which can be used as the foundation for several different career objectives:

1) Some students will wish to prepare for a career as professional engineers in industry, in business or in consulting.

2) Some will look toward graduate study in order to prepare for careers in research, development or teaching.

3) Still others will desire a more general and more liberal engineering education with the objective of keeping a variety of career avenues open.

Whatever the career objective of the student, a sound engineering educational program must include substantial content in: (1) the humanities and social sciences, (2) the physical sciences, (3) mathematics, and (4) the engineering sciences. Also, (5) there must be an in-depth experience in creative engineering design. The student expecting to accept employment in industry will probably wish to emphasize the engineering design and engineering science aspects of his or her program, while the student preparing for graduate study might emphasize the mathematics and science aspects. A high percentage of engineering graduates ultimately take on executive and management responsibilities in industries and firms which are based upon engineering products and engineering services. Accordingly, some students will want to construct an elective option in their program which includes business administration and economics offerings, and other courses which will strengthen their communication skills.

The engineering curricula prescribed by the faculty of the University of North Carolina at Charlotte give thorough attention to the five essential components of a sound program of study. Those elements which are considered basic to every program of study are specified in the curriculum outline and result in freshman requirements which are essentially the same for all engineering students, except for the electives in the humanities and social sciences. The common basic core serves not only as the educational foundation for the professional engineering courses later in the program but also provides solid preparation for the first phase of the Professional Engineering Registration Examinations (EIT Exam).

A high degree of program flexibility is achieved through the use of *Minor Option* electives which provide the student with an opportunity to develop an individualized program within one of the professional engineering departments: Engineering Analysis and Design; Engineering Science, Mechanics and Materials; and Urban and Environmental Engineering. By the careful selection of elective courses the student may achieve a specialization in one of the more traditional fields of engineering (electrical, mechanical, civil, chemical) or an undergraduate foundation for some newly emerging fields (biomedical electronics, urban engineering).

Requirements for the Bachelor of Science in Engineering Degree

English*	3
Humanities and Social Science Electives	15
Economics*	3
Mathematics*	17
Physics*	10
Chemistry*	4
Science Elective	3
Freshman Engineering*	1
Engineering Science*	6
Departmental Requirements*	55
Minor Option**	15
	132

The junior-senior level professional core of the program is composed of the departmental requirements and a group of minor option electives. The minor option is to be a coherent collection of courses designed to meet the specific professional goal of the individual student. This elective package may be used in several ways: (1) to strengthen the major field of specialization: (2) to obtain significant depth within a particular area of specialization in the major field; (3) to build some strength in another engineering or technical field; (4) to strengthen the mathematics, science and engineering base preparatory to graduate study; (5) to support an interdisciplinary study program; e.g., computer science and engineering, biology and physiology related to biomedical engineering; or (6) to develop a second area of interest, e.g., business administration, foreign languages, humanities, social and behavioral sciences.

The minor option must contain at least six hours of course work dealing with engineering science, analysis, synthesis or design with the remaining nine hours being in engineering, science, mathematics, business, architecture, communications or another approved area.

The Humanities and Social Science Electives: The student selects courses approved by the student's department so as to attain a broad background in the humanities and social science areas as well as some depth in at least one such area.

Before undertaking any of the elective courses, the student will work out with his or her adviser a detailed study plan indicating the objectives of the educational program and how the choice of these electives meets these objectives. The requirement of pre-planning the technical and non-technical electives program is intended to assure maximum utilization of curriculum flexibility by actively involving the student in a personalized program of study which will be sound in the professional sense, will recognize and take advantage of the student's best motivations and highest capabilities and will result in a broad and deep educational preparation for service to and fulfillment in the current technological society.

Two Year Rule. Any engineering student who has been suspended for academic reasons from UNCC is eligible for *one* readmission to engineering after a minimum period of two years from the last semester of enrollment at UNCC. At the time of readmission, the student must elect one of the following options:

1. All courses previously attempted at UNCC are used for the determination of his or her quality point average. However, for the calculation of the student's quality point average at the time of readmission, the quality points for any course which has been repeated because of an initial *D* or *F* grade shall be based only on the last grade assigned with the associated "hours attempted" counting only once.

*See the departmental section of the Catalog for these specific requirements

**See departmental publications for suggested minor-option outlines.

2. Only those courses for which the student has received a grade of C or better can be used to satisfy degree requirements. His or her quality point average will be based only on work attempted after readmission. Eligibility for continued enrollment is determined as in the case of transfer students.

Any student who voluntarily left UNCC and has not attended UNCC for two or more years is eligible for readmission and may exercise either of the preceding options at the time of readmission.

To qualify for honors or high honors, a student must complete at least 48 hours in residency in computing the quality point average after readmission to UNCC.

Cooperative Education. Students in the BSE and BET programs may desire to obtain practical work experience while pursuing their degree by participating in cooperative education whereby a student alternates semesters of academic study with semesters of work experience in industry. The work experience is under the direction of the college and is closely related to the student's field of study.

To be eligible for the co-op program a BSE student must have completed at least 24 credit hours at UNCC including a number of specified engineering and science courses with a minimum GPR of 2.25. A transfer student is expected to have completed at least 12 hours at UNCC. A BET student must have earned an Associate of Applied Science degree with GPR of 2.50 or better (out of 4.00).

For a graduate to be designated as a co-op student, the student must participate in at least three semesters of work experience. Consequently, participation in co-op education usually means that the student will take five years to complete the BSE degree program or three years (at UNCC) to complete the BET degree program.

Students interested in learning more about the advantages and opportunities of participating in this program should contact the Engineering Co-op Office in the college.

MASTER OF SCIENCE IN ENGINEERING

The master of science in engineering program provides an opportunity for graduate-level engineering education both to improve on-the-job skills and to provide an advanced degree program for career development. The College-wide degree program is of an applied and professional nature though flexible enough to permit inclusion of management, communications and other subjects appropriate for total career development. In most respects the program is a one-year (30 hours) extension of the College's bachelor of science in engineering program and is administered by the three participating departments — Engineering Analysis and Design; Engineering Science, Mechanics and Materials; and Urban and Environmental Engineering. Students desiring to enter the program must present evidence of satisfactory undergraduate preparation in engineering, usually manifested by possession of a baccalaureate degree in some accredited program of engineering.

Degree Requirements

1. The satisfactory completion of a minimum of 30 hours of approved graduate credits as prescribed by the student's department and Advisory and Examining Committee and fulfilling the following:

   A minimum of 18 semester hours of graduate course credit in a major area of engineering, no more than six of which can be for a research thesis or a creative design project; or, alternatively, no more than three of which can be for a special problem report. The decision as to whether a program will include a thesis, design project or problem report is to be made on an individual basis at the time of filing the student's Plan of Study (See pages 256-257).

   A minimum of 12 semester hours of approved elective graduate course credit, at least six

of which must be in mathematics, science or another engineering area. Inclusion of business and/or communication courses is permitted.

2. Of the required minimum of 30 semester hours, at least 18 must be in courses primarily for graduate students; i.e., no more than 12 hours of the required 30 can be in 300 or 400 level courses approved for graduate credit.

3. Academic Standards: Only the grades of *A*, *B* or *C* shall be accepted as credit toward the MSE degree. A grade of *U* in any course will terminate the student's enrollment in the MSE program subject to re-admission as prescribed in the University Catalog. Similarly, an accumulation of three *C* grades will result in termination of the student's enrollment, subject to readmission to the program.

   A student in any graduate program is required to maintain satisfactory progress toward the degree. Continued enrollment is at all times subject to review on the basis of academic record and of actions with regard to observance of University rules and regulations.

   Students admitted to full standing will normally be permitted to re-enroll in successive terms, subject to satisfactory performance on course work and to load limitations imposed by their employers and the University. However, they must complete formal registration within the designated registration period. A student admitted conditionally to full standing will be permitted to continue, subject to satisfactory academic performance, until he or she has attempted 12 semester hours of graduate course work, at which time admission status will be reviewed by the major department and the EGC after which the student will be advised as to his or her eligibility to continue.

   Students admitted to non-degree status are admitted for one semester only and should fulfill requirements for admission to full standing by the application date for the following term if they wish to take additional course work.

   To qualify for the MSE degree, the student must have a grade point average of at least 3.00 based upon all courses acceptable for graduate credit for which he/she received a grade from the University.

4. Transfer and residence credit are to be in accordance with University regulations.

5. All work offered for the degree of master of science in engineering must be completed within a six-year period.

Plan of Study and Admission to Candidacy

1. Plan of Study

After completing at least nine but no more than 18 semester credit hours of graduate study, the student shall file a *Plan of Study*. This plan is formulated by the student with the advice and consent of the academic adviser and the student's Program Committee and submitted for approval to the major department and the College's Engineering Graduate Committee. This plan is to indicate all course work and any other requirements (thesis, project problems, deficiencies, etc.) which the student is expected to fulfill satisfactorily before the awarding of the MSE degree.

Relatively minor changes in an approved Plan of Study (e.g., change in a date for when a course is to be taken, or a direct substitution of one course for another course *in the same area, etc.)* may be made at the discretion of the student's adviser and Program Committee, although such changes shall be so indicated in the student's Admission to Candidacy.

However, significant changes such as a change of adviser, change of research topic, change of minor area, etc., shall be submitted immediately to the EGC for its review to ensure that such changes conform to the existing guidelines for the MSE program.

2. Admission to Candidacy

Upon completion of a substantial amount of graduate work and in no case later than two weeks prior to the beginning of the semester in which the student expects to complete all requisites for the degree, the student shall file for Admission to Candidacy on a form supplied by the Graduate Office. This application is a checksheet approved by the adviser, department chairman, and the college dean listing all course work to be offered for the degree (including transfer credit and courses in progress). Upon receipt of this application, the Director of Graduate Studies will consult with the department concerned to arrange for the scheduling of the comprehensive examination(s).

Final Examination

Upon completion (or near completion) of all other degree requirements as indicated in the Admission to Candidacy, the candidate shall stand for a final comprehensive examination(s). This examination(s) (written, oral or both) is to be set and administered by the student's Program Committee and is to cover those areas of study and/or research as deemed appropriate by the committee.

The result of this examination and the committee's recommendation as to the candidate's qualifications for the degree shall be transmitted to the EGC for review and subsequent transmittal to the proper University authority.

COURSE DESCRIPTIONS

ENGINEERING

Courses for Undergraduates

EGR 100. Introduction to Engineering. (1) Introduction to engineering as an area of study and as a career; engineering morality and public responsibility; professional development and professional registration.

EGR 101 A,B,C. Introduction to Engineering Problems I. (1,1,1) An introduction to the concepts, techniques and tools used to solve engineering problems, including computational methods, engineering graphics and introduction to computer usage. NOTE: To satisfy BSE degree requirements, a student completes three courses of one credit-hour each.

EGR 102 A,B,C. Introduction to Engineering Problems II. (1,1,1) A continuation of EGR 101. NOTE: To satisfy BSE degree requirements, a student completes three courses of one credit-hour each.

EGR 390. Engineering Cooperative Education Experience. (0) This course is for CO-OP students during the semester that they are working. No credit is given.

EGR 395. Engineering Cooperative Education Seminar (1) This course is required of CO-OP students preceding their first work assignment for orientation purposes and immediately following each work assignment for presentation of engineering reports on work done the prior semester.

Courses for Graduates and Advanced Undergraduates

EGR 538. Finite Element Analysis and Applications. (3) (3G) Prerequisite: Consent of instructor. An introduction to the finite element method and its application to engineering problems. Application of the displacement method to plane stress, plane strain, plate bending and axisymmetrical bodies. Topics include but are not limited to: dynamics, heat transfer, fluid mechanics, structural mechanics, and electric fields.

EGR 590. Special Topics. (1-6) (1-6G) Directed study of current topics of special interest. May be repeated for credit.

EGR 592. Individualized Study and Projects. (1-6) (1-6G) Individual investigation and exposition of results. May be repeated for credit.

Courses for Graduate Students Only

EGR 690. Special Topics. (1-6G) Directed study of current topics of special interest. May be repeated for credit.

EGR 691. Graduate Thesis Research. (1-6G) Individual investigation culminating in the preparation and presentation of a thesis. May be repeated for credit.

EGR 692. Individualized Study and Projects. (1-6G) Individual investigation and exposition of results. May be repeated for credit.

CONTINUING ENGINEERING STUDIES

The College of Engineering sponsors various special educational programs for practicing engineers, technologists, technicians and others in addition to its regular academic degree programs and courses. These include conferences, short courses, seminars and other continuing education programs designed to aid those practicing in the technical professions and occupations to keep abreast of the latest developments in the rapidly expanding technology. The courses listed below are offered on a periodic basis, while many others are offered on demand.

PROFESSIONAL ENGINEERING-BASICS. Forty-five hours of work reviewing mathematics, chemistry, economics and the basic engineering sciences as preparation for the Professional Engineering Basics (EIT or Exam I) Examination.

PROFESSIONAL ENGINEERING-APPLIED. Fifty-four hours of work reviewing applications in chemical, civil, electrical and mechanical engineering and engineering economics as preparation for the Professional Engineering Principles and Practice (PE or Exam II) Examination.

SURVEYING. Eight hours of work reviewing land surveying as preparation for the land surveying examination.

Anyone desiring information on these courses or requesting special offerings may contact the Office of Continuing Education.

Department of Engineering Analysis and Design

Chairperson: Professor Wayne
Distinguished Professor: Barnette
Associate Professors: Allen, Hari, Mescua, Smith
Assistant Professors: Kakad, Modaress-Razavi, Wunk
Lecturers: Jenkins, Preston

The Engineering Analysis and Design Department provides instruction and research in disciplines related to engineering design, analysis and synthesis. The undergraduate curriculum is structured to accommodate options in electrical engineering, computer engineering and mechanical design. Within the electrical engineering option, it is possible to further specialize in electronics, microelectronics, power systems analysis and distribution systems, systems theory and simulation, and circuit theory. Within the computer option, it is possible to synthesize a hardware-oriented program, software-oriented program or a combination of the two. The mechanical design option emphasizes a systems approach to machine design.

A six-semester sequence of courses emphasizing circuits and systems forms the core of the curriculum. These courses are designed to develop the concepts and analysis techniques fundamental to the various areas of specializations. Emphasis is placed on the utilization of the computer in all courses throughout the curriculum.

The laboratory courses are designed to serve three purposes: (1) to teach the basic techniques of instrumentation; (2) to develop skills in communications; and (3) to relate the analytical methods developed in the classroom to the performance of real physical systems.

The curriculum requirements are flexible enough so that a student may synthesize a program of study to achieve his or her particular objectives and his or her desired degree of specialization. This is done through the use of the technical electives, with the guidance and approval of the student's academic adviser and approval of the department chairperson. All students must have a Career Goals and Educational Planning form approved by their academic adviser and department chairperson prior to scheduling a technical elective. If further specialization in a particular area is desired, the student may be encouraged to seek an advanced degree.

The technical electives must contain at least six hours of course work dealing with engineering science, analysis, synthesis or design with the remaining nine hours being in engineering, science, mathematics, business or communications.

Graduate studies in electronics, microelectronics, computer systems, power systems and mechanical design are offered by the Department.

The curriculum in Engineering Analysis and Design is accredited by the Accreditation Board for Engineering and Technology (formerly ECPD).

The departmental requirements for a major in Engineering Analysis and Design are:

EAD 102 — Computer Language I and Graphics 2
EAD 201 — Computer Language II 2
EAD 211 — Linear Networks I 3
EAD 212 — Linear Analysis I 3
ESM 242 — Engineering Mechanics II
EAD 382 — Switching Theory and Logic Design I 3
EAD 254 — Laboratory Ia 2
EAD 311 — Linear and Dynamic Systems I 3
EAD 312 — Linear and Dynamic Systems II 3
EAD 332 — Fundamentals of Electronics and Semiconductors
EAD 323 — Analysis and Synthesis of Mechanisms 3
ESM 321 — Introduction to Electromagnetic Fields
ESM 341 — Mechanical Behavior of Solids
EAD 481 — Switching Theory and Logic Design II 3
EAD 322 — Mechanical Systems Design
EAD 431 — Electronics
EAD 384 — Computer Organization and Microprogramming 3
ESM 322 — Electromagnetic Waves
EAD 385 — Digital Logic Devices
ESM 342 — Introduction to Fluid Mechanics 3
EAD 386 — Computer Architecture
ESM 312 — Thermodynamics II
EAD 342 — Electromagnetic Devices 3
EAD 353 — Laboratory IIa 2
EAD 354 — Laboratory IIIa 2
EAD 411 — Automatic Control Systems I 3
EAD 412 — Automatic Control Systems II 3
EAD 453 — Senior Design I 2
EAD 454 — Senior Design II 3
EAD 499 — Professional Development 1
One additional 400-level EAD course 3

55

Curriculum Outline for the BACHELOR OF SCIENCE IN ENGINEERING

Engineering Analysis and Design

Freshman

EGR 100	1	EAD 102	2
MAT 141	4	MAT 142	4
CHE 101	3	PHY 221	3
CHE 101L	1	PHY 251	1
ENG 101	3	HUM/SS	3
HUM/SS	3	HUM/SS	3
	15		16

Sophomore

EAD 211	3	EAD 212	3
EAD 201	2	ESM 242 or EAD 382	3
ESM 241 or ESM 243	3	MAT 241	3
MAT 271	3	PHY 241	3
PHY 231	3	EAD 254	2
ECO 201 or ECO 202	3	HUM/SS	3
	17		17

Junior

EAD 311	3	EAD 312	3
EAD 353	2	EAD 354	2
MAT elective	3	EAD 431 or EAD 384 or EAD 322	3
EAD 332 or EAD 323	3	ESM 322 or EAD 385 or ESM 342	3
ESM 321 or ESM 341 or EAD 481	3	EAD 342 or EAD 386 or ESM 312	3
HUM/SS	3	Technical elective	3
	17		17

Senior

EAD 411	3	EAD 412	3
EAD 453	2	EAD 454	3
EAD 4xx	3	ESM 311	3
Technical elective	3	Technical elective	3
Technical elective	3	Technical elective	3
Science elective	3	EAD 499	1
	17		16

COURSE DESCRIPTIONS

ENGINEERING ANALYSIS AND DESIGN

Courses for Undergraduates

EAD 102. Computer Language I and Graphics. (2) Prerequisite: MAT 103 with a grade of *C* or better or MAT 141 with a grade of *C* or better. Introduction to the concepts and techniques of engineering graphics using computational methods and computer graphics. Introductory computer programming using electrical engineering applications.

EAD 201. Computer Language II. (2) Prerequisite: EAD 102 with a grade of *C* or better. Introduction to a second high level language, algorithms, flowcharting, use of engineering software packages, engineering subroutines and program documentation.

EAD 211. Linear Networks I. (3) Prerequisite or corequisite: Mathematics 142. Introduction to Kirchoff's current and voltage laws and their extensions by analog to mechanical, hydraulic and thermal systems. Terminal equations of system components. Formulation of circuit models and equations. Singularity functions and signals. Power and energy functions.

EAD 212. Linear Analysis I. (3) Prerequisite: EAD 211 with a grade of *C* or better. Prerequisite or corequisite: Mathematics 271. A unified study of models and dynamical properties of mechanical, electrical and hydraulic systems. Emphasis is placed on the development and utilization of realistic mathematical models of physical equations with step, pulse and sinusoidal driving functions using Laplace Transforms. The vector transform as an

introduction to sinusoidal steady state. Sinusoidal steady state and frequency response of networks.

EAD 252. Laboratory I. (1) Prerequisite or corequisite: EAD 212. The first in a series of laboratories designed to develop an understanding of the principles and theory of parameter measurement and instrumentation. Instruction in the use of laboratory equipment and the development and application of experimental techniques. Three laboratory hours per week.

EAD 254. Laboratory Ia. (2) Prerequisite: ENG 101; prerequisite or corequisite: EAD 212. The first in a series of laboratory oriented courses designed to develop an understanding of the principles and theory of parameter measurement and instrumentation. Instruction in the use of laboratory equipment and development and application of experimental techniques. One hour of lecture and three laboratory hours per week.

EAD 258. Basic Electrical Engineering Laboratory. (1) Prerequisite or corequisite: EAD 268. A laboratory designed to supplement the student's knowledge and enhance his understanding of the principles and operation of electrical circuits, basic electronic devices and energy conversion devices. Not open to Engineering Analysis and Design Majors. Three laboratory hours a week.

EAD 261. Basic Electrical Engineering I. (3) Corequisite or prerequisite: PHY 231. A study of the fundamental concepts and methods of analysis used in electrical engineering. Topics to include: terminal characteristics of devices, analysis of d.c. and a.c. circuits, elementary operation of electronic devices. Not open to Engineering Analysis and Design majors.

EAD 262. Basic Electrical Engineering II. (3) Prerequisite: EAD 261 with a grade of C or better. A continuation of EAD 261 covering electronics, magnetic fields, electromagnetic and electromechanical devices. Not open to Engineering Analysis and Design majors.

EAD 268. Basic Electrical Engineering. (3) Prerequisites: Physics 102 and Mathematics 142. A study of the fundamental concepts and methods of analysis used in electrical engineering. Topics to include: terminal characteristics of devices, analysis of d.c. and a.c. circuits, elementary operation of electronic devices and electromechanical energy conversion devices. Not open to Engineering Analysis and Design majors.

EAD 281. Elements of Digital Circuits for Non Engineers. (1) Prerequisite: Minimum of sophomore standing. This course is designed to introduce a non-engineering student to the electronics used in digital computer logic and familiarize the student with measuring devices. Topics will include Ohm's Law; current, voltage, resistance; capacitance; transistors or switches; combinational logic, logic families; integrated circuits, loading, speed, sequential logic and timing. A combination of lecture, recitation and laboratory averaging two hours of class time a week. No credit towards degree requirements for any student in the College of Engineering.

EAD 311. Linear and Dynamic Systems I. (3) Prerequisite: EAD 212 with a grade of C or better. A unified study of models and dynamical properties of mechanical, electrical and hydraulic systems. Emphasis is placed on the development and utilization of realistic mathematical models of physical aspects of systems. Equation formulation, operation block diagrams and analog simulation. State variable techniques.

EAD 312. Linear and Dynamic Systems II. (3) Prerequisite: EAD 311 with a grade of C or better. A continuation of EAD 311 emphasizing system response characteristics in both the frequency and time domain. Introduction to system analysis techniques.

EAD 313. Circuit Theory I. (3) Prerequisite: EAD 212 with a grade of C or better. Analysis of electrical circuits using mesh, nodal and loop equations in the time and frequency domain, and sinusoidal steady state. Topological techniques. Transient and steady state response. Network theorems.

EAD 314. Circuit Theory II. (3) Prerequisite: EAD 313 with a grade of C or better. A continuation of EAD 313. Topics to include two port networks, polyphase circuits, frequency response, state variable formulation, Fourier analysis.

EAD 321. Fundamentals of Mechanical Design. (3) Prerequisite: ESM 242 or consent of the Department. A study of the design process with examples drawn from the various engineering disciplines. Application of the basic principles of engineering to real world problems, including systems approach to mechanically oriented problems. Introduction to the concepts related to current engineering design problem areas such as noise, artificial environments and human factors.

EAD 322. Mechanical Systems Design. (3) Prerequisites: EAD 323 with a grade of C or better, ESM 341; or consent of the Department. An introduction to the mechanical design and dynamic analysis of machine elements and systems; linkages, bearings, gears, springs and other mechanical components used in machine systems.

EAD 323. Analysis and Synthesis of Mechanisms. (3) Prerequisite or Corequisite: ESM 242. Introduction to kinematic elements, mechanisms and machines. Analysis of the motion of linkages, cams and gears. Kinematic design of cams, gears and gear-trains. Synthesis of plane linkages. Computer-aided design of kinematic systems.

EAD 332. Fundamentals of Electronics and Semiconductors. (3) Prerequisite: EAD 212. A study of fundamental concepts of principles embracing both vacuum tube and semiconductor theory. Semiconductor and vacuum tube parameters and characteristics. Small signal analysis and equivalent circuits. Rectifier circuitry, vacuum tube and gas tube power devices; thyratrons, ignitrons, etc. Photo-electric devices. Amplifier and oscillator characteristics and their configurations.

EAD 342. Electromagnetic Devices. (3) Prerequisite: EAD 212. Magnetic circuits. Transformer principles, equations, circuits. Magnetic amplifiers. Incremental motion transducers. Field of distributed windings. Servo control transformers, selsyns.

EAD 351. Laboratory II. (1) Prerequisite: EAD 252 with a grade of C or better. Prerequisite or corequisite: EAD 311. A study of the various generating, measuring and recording devices and evaluation of their accuracy. A study of the use of instrumentation to monitor operating systems and to determine the characteristics and behavior of physical devices. Three laboratory hours per week.

EAD 352. Laboratory III. (1) Prerequisite: EAD 351 with a grade of C or better. Prerequisite or corequisite: EAD 312. A continuation of EAD 351, emphasizing the experimental analysis and design problems. Computer-aided analysis and design.

EAD 353. Laboratory IIa. (2) Prerequisite: EAD 254 with a grade of C or better. Prerequisite or corequisite: EAD 311. A study of the various generating, measuring and recording devices and evaluation of their performance. A study of the use of instrumentation to monitor operating systems and to determine the characteristics and behavior of physical devices. One hour of lecture and three laboratory hours per week.

EAD 354. Laboratory IIIa. (2) Prerequisite: EAD 353 with a grade of C or better. Prerequisite or corequisite: EAD 312. A continuation of EAD 353 emphasizing the experimental analysis and design problems. Modeling and model evaluation. One hour of lecture and three laboratory hours per week.

EAD 381. Computer Utilization in Engineering. (3) Prerequisite: Junior standing in engineering or consent of instructor. The application of the digital computer to engineering analysis and design problems. Computer-aided analysis and design.

EAD 382. Switching Theory and Logic Design I. (3) Prerequisite: Junior standing or consent of the instructor. An introduction to switching theory and logic design. Elementary topics in Boolean algebra. Combinational circuits, iterative networks and analysis of

sequential circuits. The engineering aspects of logic design are emphasized, culminating in a hardware design problem coordinating the topics covered.

EAD 384. Computer Organization and Microprogramming. (3) Prerequisite: EAD 382 with a grade of C or better or permission of Department. Review of logic circuits and SSI/MIS/LSI design; bus structures and memory organization; interrupt structures and handling; input/output handling; DMA; microprogramming controller; bit slice microprocessors; survey of current microprocessors and minicomputers and their organization. Use of microcomputer development system.

EAD 385. Digital Logic Devices. (3) Prerequisite: EAD 382 with a grade of C or better. Prerequisite or corequisite: EAD 332. Bipolar and field-effect transistors, switching characteristics, device models, logic families. Memory devices, one-shots, Schmitt triggers, logic gates, drivers. Use of logic analyzers.

EAD 386. Computer Architecture (3) Prerequisite: EAD 384 with a grade of C or better. Architectural parameters; interpretation and control structures; instruction sets and addressing schemes; formats and frequency distribution of instructions; stack processing; memory hierarchies, pipe-lining; vector and multi-processing.

EAD 387. Programming Languages. (3) Prerequisite: CSC 3xx (DATA STRUCTURES). Topics to include the structure of simple statements and algorithmic languages, list processing, manipulation and text editing, linear-time parsers/interpreters/compilers. Emphasis throughout is on application of these concepts to engineering systems including programmable logic controllers and mini/micro computers as process controllers.

Courses for Advanced Undergraduates (and Graduates as Designated)

EAD 411. Automatic Control Systems I. (3) Prerequisite: EAD 312 with a grade of C or better. A study of transfer functions, block diagrams and signal flow graphs. Feedback control system characteristics. The performance and stability of feedback systems using root locus and frequency response methods. Time domain analysis of control systems. The design and compensation of control systems.

EAD 412. Automatic Control Systems II. (3) Prerequisite: EAD 411 with a grade of C or better. A study of state space techniques and useful state space methods. System stability. Controlability and observability of linear systems. The formulation of the state equations for discrete-time systems and the analysis of these systems by matrices. Analysis of nonlinear systems. Optimal control systems studies.

EAD 415. Mechanical Vibrating Systems. (3) (3G) Prerequisite: ESM 341 or permission of the Department. A study of free and forced vibrations of systems with multi-degrees of freedom. Transient vibrations, analog simulation, non-linear vibrations and the vibration of continuous systems.

EAD 421. Machine Analysis and Design I. (3) (3G) Prerequisite: EAD 322 with a grade of C or better. Senior standing. Technical application of the basic principles of the mechanical science to the analysis of machines and mechanical systems. Methods of design of typical machine elements. Strength and deflection requirements.

EAD 422. Machine Analysis and Design II. (3) (3G) Prerequisite: EAD 421 with a grade of C or better. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

EAD 431. Electronics. (3) (3G) Prerequisite: EAD 332 with a grade of C or better. A study of electronic and semiconductor devices; transistor and vacuum tube power devices, audio and radio frequency amplifiers, tunnel diode amplifiers, high frequency amplifiers, feedback analysis of vacuum tube and transistor circuits, modulation and demodulation theory and related circuitry. Generalized oscillatory analysis.

EAD 432. Computer Electronics. (3) (3G) Prerequisite: EAD 431 with a grade of *C* or better. A study of logic and gate circuits, wave-shaping circuits, switching circuits, multivibrators, pulse circuits.

EAD 436. Industrial Electronics. (3) Prerequisite: EAD 332 with a grade of *C* or better. A study of high power solid state circuits. Topics to include choppers, phase controlled rectifiers, triggering devices, inverters and dual converters, limiting and regulating circuits.

EAD 441. Electric Power System Analysis I. (3) (3G) Prerequisites: EAD 312 and ESM 321. A study of polyphase networks, power transmission lines and power network representations. Systems representations, network equations and solutions. Application of digital computer to power systems analysis.

EAD 442. Electric Power System Analysis II. (3) (3G) Prerequisite: EAD 441 with a grade of *C* or better. A study of symmetrical components and their applications. Symmetrical and unsymmetrical fault and load considerations. Load flow problems and numerical methods. Economic operation and stability studies.

EAD 443. Electric Machinery. (3) (3G) Prerequisite: EAD 312. Direct-current machines, induction machine. Machines in control systems. Synchronous machines. Fractional horsepower motors.

EAD 451. Laboratory IV. (1) Corequisite or prerequisite: EAD 411 and prerequisite: EAD 352 with a grade of *C* or better. A continuation of EAD 352.

EAD 452. Projects Laboratory. (2) Prerequisite: EAD 451 with a grade of *C* or better. A project-oriented laboratory course designed to provide the student an opportunity to apply his undergraduate engineering education to practical real world problems.

EAD 453. Senior Design I. (2) Prerequisite: EAD 354 with a grade of *C* or better. Corequisite: Senior standing in engineering. A project-oriented course stressing the planning and design of experiments to support the student's project. Formation of the design problem and specifications.

EAD 454. Senior Design II. (3) Prerequisite: EAD 453 with a grade of *C* or better. A continuation of EAD 453 consisting of project development, analysis culminating in a written and oral presentation.

EAD 481. Switching Theory and Logic Design II. (3) (3G) Prerequisite: EAD 382 with a grade of *C* or better and permission of the Department. A continuation of EAD 382 including sequential circuit synthesis, state assignments and flow table reduction. Top-down design with stress on engineering considerations and applications.

EAD 482. Digital Systems Theory. (3)(3G) Prerequisite: EAD 382 with a grade of C or better; or EAD 281 with a grade of *C* or better and permission of the Department. The primary emphasis will be on the engineering aspects of digital systems design. Analysis and design of multiplexers, A/D and D/A converters, data communications and system interfacing. Interrupt generation and processing.

EAD 485. Microcomputer Interfacing. (3) Prerequisite: EAD 383 and EAD 384 with a grade of *C* or better or permission of the Department. In-depth study of prominent current microprocessors; general I/O support circuits, parallel and serial; specialized I/O support circuits: floppy disk controller, memory management controller, etc.; interface to analog systems; multiprocessor interfacing. An application and project-oriented course involving heavy use of microcomputer development system and logic analyzer.

EAD 486. Digital Design Automation. (3) Prerequisite: EAD 385 and EAD 485 with a grade of *C* or better. Computer-aided design systems; software and hardware; emulation, simulation methods; introduction to interactive graphics; devices, circuit and system modeling.

EAD 490. Special Topics in Engineering Analysis and Design. (Variable credit 1-4 hours. May be repeated for credit.) Prerequisite: Consent of the Department. The course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics and physical sciences stem of the core curriculum. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

EAD 491. Undergraduate Research. (Variable credit 1-4 hours. May be repeated for credit.) Prerequisite: Consent of the Department. This course involves the independent study of theoretical and/or experimental problems in the specialized area of engineering analysis and design. The student can pursue some particular area or problem to a depth much greater than can be undertaken within the scope of existing courses.

EAD 492. Individualized Study. (Variable credit 1-3 hours. May be repeated for credit.) Prerequisite: Consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses.

EAD 499. Professional Development (1) Prerequisite: Senior standing in EAD. The purpose of this course is to broaden the student's perception of engineering as a career through participation in various activities related to the engineering profession. Activities consist of attendance at professional society meetings, active participation in student organizations, attendance at visiting lectures and seminars, etc. Course requirements are spread over a two-year period. Students will write two comprehensive reports each of which concerns one of the above topics. Students will enroll in the course on a pass/no credit basis during their final semester. Satisfactory completion of this course is required for graduation for all EAD majors.

THE 500-LEVEL GRADUATE COURSES ARE FIRST YEAR GRADUATE COURSES ALTHOUGH SOME ADVANCED SENIORS MAY ENROLL WITH PERMISSION OF THE DEPARTMENT OFFERING THE COURSE.

EAD 511. Control Systems. (3)(3G) Prerequisites: Consent of the Department. Mathematical models and characteristics of control systems. Performance and stability of linear feedback systems. Root locus and frequency response techniques. Stability in frequency domain. Time domain analysis. Design and compensation of control systems. Credit will not be given for EAD 511 where credit has been given for EAD 411.

EAD 513. Nonlinear Analysis. (3) (3G) Prerequisite: EAD 312. Solution of nonlinear problems using numerical and graphical methods, phase plane plots, analysis of singular points and analytical techniques. Forced oscillating systems. Stability of nonlinear systems. Use of analog and digital computer to study nonlinear problems.

EAD 514. Network Synthesis. (3) (3G) Prerequisite: EAD 314 or equivalent. The positive real concept, properties and methods of testing. Realizability conditions on driving point functions. Methods of synthesis of one-point. Physical realizability and properties of two-port networks. Transfer function synthesis. Approximation methods.

EAD 521. Mechanism Analysis. (3) (3G) Prerequisite: EAD 421 or consent of the Department. Analysis of coplanar and spatial mechanism, application of matrix methods in analysis of mechanisms, mobility analysis of mechanisms, rigid body guidance, computer aided analysis of mechanisms.

EAD 525. Vibrations. (3) (3G) Prerequisite: EAD 415 or consent of the Department. Vibrations of linear, discrete multiple degree of freedom systems: natural frequency normal modes, principal coordinates, forced oscillations and damping. Approximate methods: iteration, Rayleigh-Ritz, Galerkin, etc. Applications may include buildings, structures, power transmission lines, turbines, etc.

EAD 531. Data Communications. (3) (3G) Prerequisites: EAD 382 and EAD 332. Topics include asynchronous communications, UARTS; 20 ma loop, CCITT, RS-232-C, and RS-422/3 standards; telephone switching systems, model control, asynchronous models; error detection; synchronous communication; protocols, bisync, SDLC; packet switching.

EAD 532. Modern Electronics. (3) (3G) Prerequisite: EAD 431. Topics include electrical transducers and instrumentation amplifiers, active filters, signal conditioning and analog processing, data conversion, process control, electronic power supplies, reliability, noise and low-level signal processing.

EAD 533. Communications Theory I. (3) (3G) Prerequisite: EAD 314. A study of information transmission and modulation systems. Analysis of transmission through electric networks, analysis and comparison of modulation systems, analog and digital communication systems. Introduction to information theory, sampling theory and noise. Introduction to statistical communications theory.

EAD 561. Advanced Computer Utilization In Engineering. (3) (3G) Prerequisite. Consent of the instructor. The use of computers in large scale engineering problems. Topics include flow diagrams, matrix analysis of systems, applications of iteration methods to nonlinear problems, eigenvalue problems, optimization and handling of large engineering data base problems. Engineering applications will be emphasized.

EAD 583. Engineering Simulation. (3) (3G) Prerequisite: EAD 381 or consent of the instructor. A wide range of simulation related topics will be introduced including the theory of simulation, characteristics of simulators, and trade-offs in simulation studies. Continuous and discrete simulation with primary emphasis on application of simulation techniques to engineering problems. Simulation of actual problems based on students' interest and experience areas.

Courses for Graduate Students Only

EAD 611. Systems Theory. (3G) Prerequisite: EAD 412 or consent of instructor. State space concepts and solutions. Introduction to theory of deterministic linear systems. Application of matrix methods and vector difference equations to lumped parameter electrical mechanical and fluid systems, and discrete time systems. Frequency domain techniques in signal and systems analysis. Computer simulation of system dynamics.

EAD 619. Real Time Digital Control. (3G) Prerequisite: EAD 611 and EAD 482 or consent of the Department. Time-domain and Z-domain analysis of linear discrete systems, open and closed loop sampled data systems, engineering characteristics of computer control systems, simulation of system dynamics.

EAD 620. Bearing Design and Lubrication. (3G) Prerequisite: EAD 422 or consent of the Department. Hydrodynamic lubrication, fluid film and rolling element bearings, design and control of gas and fluid lubricated bearings.

EAD 621. Mechanism Synthesis. (3G) Prerequisite: EAD 521 or consent of the Department. Synthesis of coplanar and spatial mechanisms, number and type synthesis, function generator, path generator, optimal synthesis of mechanisms, case studies in optimal design of mechanisms.

EAD 623. Mechanical Design. (3G) Prerequisite: ESM 441 or consent of the Department. Impact loading on critical sections, fatigue consideration, stress concentration, fluctuating stresses, failure analysis contact stresses, industrial case studies.

EAD 641. Operation of Integrated Power Systems. (3G) Prerequisite: EAD 442 or consent of instructor. System modeling and matrix analysis of power networks. Application of computers to the solution of a variety of problems related to operation, planning and design of electric power systems.

EAD 642. Control of Integrated Power Systems. (3G) Prerequisite: EAD 442 or permission of Department. Analysis and simulation of power system components. Study of transient and control problems associated with interconnected power systems and techniques of analysis. Practical methods applied to analysis of large systems.

EAD 648. Dynamics of Machinery. (3G) Prerequisite: EAD 422 or consent of the Department. Application of principle of dynamics of machinery, balancing of rigid and flexible rotors. Dynamics of spatial mechanisms. Computer aided dynamic analysis of machinery.

EAD 661. Optimization of Engineering Designs. (3G) Prerequisite: EAD 561 or consent of instructor. The development of computationally feasible algorithms for solving optimization problems in engineering designs. Introduction to non-linear programming methods; study of constrained and unconstrained problems, linear programming problems and other related topics.

EAD 662. Digital Signal Processing. (3G) Prerequisite: EAD 412 or consent of the Department. Topics include complex variables, phasors, digital signals and systems. Fourier transform of digital signals, digital filters, Kepstrum FFT, random processes, spectral estimation, deconvolution.

EAD 680. Computer System Engineering. (3G) Prerequisite: EAD 481 or consent of instructor. Topics include data formats, register transfer operations, computer organization, microprogram control and ALU design. Arithmetic algorithms, I/O organization and memory organization are also covered. Specific emphasis is placed throughout on tradeoffs between hardware and software.

EAD 681. Switching and Automata Theory I. (3G) Prerequisite: EAD 680 or consent of instructor. Topics include sets, relations, lattices, Boolean algebras; functional decomposition and symmetric functions; threshold logic; multiple-value logic; fault detection and fault tolerant design; finite state machines, incompletely specified machines, minimization; state indentification and fault-detection experiments; finite state recognizers.

EAD 683. Multiprocessor Systems Design. (3G) Prerequisites: EAD 481 and EAD 531. Topics include applications of multiprocessors to digital systems design; hardware/software trade-off considerations; master/slave, multiple-master and loosely coupled systems; data handling and synchronization problems, networking.

Department of Engineering Science, Mechanics and Materials

Chairperson: Professor DeHoff
Professors: Houghton, Mohanty, Snyder
Associate Professors: Coleman, Crippen, Kim
Visiting Associate Professor: Kieilyalli
Assistant Professor: Aly
Lecturer: Harms
Adjunct Professors of Biomedical Engineering: Masters, Svenson, Robicsek

The engineering sciences are identified as those areas of engineering which emphasize the application of the fundamental principles of the physical sciences, primarily chemistry and physics, to engineering problems. Some classical engineering areas recognized to fall within this field include the thermal and energy sciences, engineering mechanics, engineering materials, electric and magnetic fields and physical electronics.

Using the flexibility provided by the BSE minor option provisions, and with careful planning with his or her engineering career counselor, a student can develop a variety of educational programs which would provide the background for professional engineering licensing and practice in any of the areas included within the engineering sciences. The student can prepare for graduate study in the general field of engineering science or in one of the traditional areas; e.g., mechanical engineering, electrical or material sciences. A student can also develop an individualized study program in one of the interdisciplinary fields involving the merger of engineering and the various science areas, such as bioengineering, microelectronics or chemical sciences.

In addition to providing preparation for engineering practice or graduate work in any of the various fields of engineering science, the breadth of topics included within the engineering science courses provides a unique opportunity for the person interested in a broad engineering education.

The curriculum in Engineering Science, Mechanics and Materials is accredited by the Accreditation Board for Engineering and Technology (formerly ECPD).

The departmental requirements for the bachelor of science in engineering degree with a major in engineering science, mechanics and materials are as follows:

ESM 102 — Engineering Graphics and Introduction to Engineering Computation 3
ESM 201 — Introduction to Computer Applications 3
ESM 242 — Engineering Mechanics II 3
ESM 253 — Laboratory Ia 2
EAD 261 — Basic Electrical Engineering I 3
EAD 262 — Basic Electrical Engineering II 3
PHY 252 — Experimental Physics II 1
{ESM 321 — Introduction to Electromagnetic Fields / EAD 323 — Analysis and Synthesis of Mechanisms} 3
ESM 341 — Introduction to Solid Mechanics 3
ESM 342 — Introduction to Fluid Mechanics 3
ESM 353 — Laboratory IIa 2
ESM 354 — Laboratory IIIa 2
ESM 361 — Introduction to Engineering Materials 3
{ESM 312 — Thermodynamics II / ESM 362 — Mechanical Behavior and Strength of Solids} 3
{ESM 322 — Electromagnetic Waves / EAD 322 — Mechanical Systems Design} 3

ESM 453 — Senior Design I 2
ESM 454 — Senior Design II 3
{ ESM 4XX — Department Elective
EAD 421 — Machine Analysis and Design } 3
ESM 499 — Professional Development 1
One additional 400 level ESM course 3
Communications elective 3
55

CURRICULUM OUTLINE FOR THE BACHELOR OF SCIENCE IN ENGINEERING

ENGINEERING SCIENCE, MECHANICS AND MATERIALS

Freshman Year

EGR 100	1	ESM 102	3
CHE 101	3	PHY 221	3
CHE 101L	1	PHY 251	1
MAT 141	4	MAT 142	4
ENG 101	3	Humanities or Social Sciences	3
Humanities or Social Sciences	3	Science Elective (a)	3
	15		17

Sophomore Year

ESM 201	3	EAD 262	3
ESM 241	3	ESM 242	3
EAD 261	3	MAT 271	3
MAT 241	3	ESM 253	2
PHY 231	3	Communications Elective (b)	3
PHY 252	1	PHY 241	3
	16		17

Junior Year

ESM 311	3	ESM 312 or ESM 362	3
EAD 323 or ESM 321	3	EAD 322 or ESM 322	3
ESM 353	2	ESM 354	2
ESM 341	3	ESM 342	3
ESM 361	3	Minor (c)	3
ECO 201	3	Humanities or Social Sciences	3
	17		17

Senior Year

ESM 4XX or EAD 421 (d)	3	ESM 4XX (d)	3
ESM 453	2	ESM 499	1
Minor (c)	3	ESM 454	3
Minor (c)	3	Minor (c)	3
MAT Elective (e)	3	Minor (c)	3
Humanities or Social Sciences	3	Humanities or Social Sciences	3
	17		16

(a) Three credit hours of an approved course from the physical, life or earth sciences complementing the student's overall educational plan satisfy the college degree requirement.

(b) May be selected from ENG 214, BUS 360 (requires junior standing) or any other communications course approved by the Department.

(c) Minor Option

The student can use this elective block to (1) obtain some depth within the broad field of engineering science by choosing additional advanced courses from the various engineering sciences; (2) obtain significant depth within a particular area of engineering science through the use of available ESM, science, mathematics and other engineering courses; (3) obtain a minor specialization in some other engineering or technical department; (4) prepare for graduate work in engineering, one of its specialized fields or some other engineering areas.

The minor option must contain at least six hours of course work dealing with engineering science, analysis, synthesis or design with the remaining nine hours being in engineering, science, mathematics, business or architecture.

(d) Senior level ESM course elected to complement the student's overall educational objectives.

(e) May be selected from MAT 222, 264 or a 300-level mathematics course approved by the Department.

COURSE DESCRIPTIONS

ENGINEERING SCIENCE, MECHANICS AND MATERIALS

Courses for Undergraduates

ESM 102. Engineering Graphics and Introduction to Engineering Computation. (3) An introduction to the concepts, techniques and tools used to solve engineering problems, including computational methods, engineering graphics and introduction to computer usage.

ESM 201. Introduction to Computer Applications. (3) Prerequisites: ESM 102 and MAT 141. Computer programming with emphasis on FORTRAN, batch and terminal operations, applications of numerical techniques to the solution of engineering problems.

ESM 241. Engineering Mechanics I. (3) Prerequisite or corequisite: Math 142. The first course of a two-semester sequence introducing the principles of particle and rigid body mechanics, with engineering applications. Force systems and resultants. The equilibrium of particles and rigid bodies. Friction. The kinematics and kinetics of particles. Work-energy and impulse-momentum principles and conservation laws.

ESM 242. Engineering Mechanics II. (3) Prerequisite: ESM 241. Prerequisite or corequisite: Math 241. Properties of areas and volumes. The inertia tensor. Introduction to the dynamics of systems of particles and of rigid bodies. Energy and momentum methods. Plane motion of rigid bodies.

ESM 243. Statics and Strength of Materials. (3) Prerequisites: MAT 141 and PHY 221; corequisite: MAT 142. Force systems, resultants and equilibrium of particles and rigid bodies. Introduction to the engineering theory of deformable solids with applications.

ESM 252. ESM Laboratory I. (1) Prerequisite: EAD 211. The first of a series of laboratories designed to instruct the student in the use of laboratory equipment and to develop and apply the principles of experimentation and measurement. Three laboratory hours per week.

ESM 253. Laboratory Ia. (2) Prerequisite: ENG 101, EAD 261 and PHY 252L. The first of a series of laboratories designed to instruct the student in the use of laboratory equipment and to develop and apply the principles of experimentation and measurement. One hour of lecture and three laboratory hours per week.

ESM 281. Concepts of Engineering Mechanics. (3) Prerequisite: Math 103A (plane trigonometry) or equivalent. Introduction to the concepts of forces, moments and stresses; mechanical properties of materials; mechanical failure and fracture; extensions to the behavior of various types of structures. Credits for this course may not be applied to the BSE or BET degrees.

ESM 311. Thermodynamics I. (3) Prerequisite: ESM 241 or Physics 221 and Math 271. First and second laws of thermodynamics. Work and heat. Thermodynamic probability and entropy. Ideal and real gases. Nonreactive mixture of gases. Availability and irreversibility.

ESM 312. Thermodynamics II. (3) Prerequisite: ESM 311. General thermodynamic relations; equations of state and generalized charts. Combination, dissociation and chemical equilibrium. Introduction to statistical thermodynamics.

ESM 321. Introduction To Electromagnetic Fields. (3) Prerequisite: EAD 211. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics; potential functions, dielectrics, capacitance, energy and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell equations.

ESM 322. Electromagnetic Waves. (3) Prerequisite: ESM 321. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial cables and waveguides.

ESM 331. Introduction To Electronic Materials. (3) Prerequisite: Physics 222 or 231. A survey of important classes of electronic materials and devices with examples from crystalline and amorphous semiconductors, junction and MOS devices, thermoelectrics, lasers and superconductors. Introduction to the quantum mechanics of electrons in solids, electron-atom interactions and energy band model, providing a basis for rationalizing a wide variety of electronic properties.

ESM 341. Introduction To Solid Mechanics. (3) Prerequisite or corequisite: ESM 242 or prerequisite: ESM 241 and Math 241. An introduction to engineering theory of deformable solids and its applications. Stress and deformation resulting from axial, torsion, and bending loads. Shear and moment diagrams, Mohr's circle for stress and strain, and buckling of columns. Inelastic behavior is considered as well as time and temperature effects.

ESM 342. Introduction to Fluid Mechanics. (3) Prerequisite: ESM 241 and Math 241. A first course in fluid mechanics introducing the basic concepts of a fluid and the fundamentals of ideal and real fluid flow. Topics covered include fluid statics, conservation principles, Bernoulli's equation, fluid flow in pipes, and measurement devices.

ESM 351. ESM Laboratory II. (1) Prerequisite: ESM 252 or consent of the Department. Laboratory experiments and development of basic experimental techniques and instrumentation necessary for static and dynamic measurements in the areas of engineering science, mechanics and materials. Three laboratory hours per week.

ESM 352. ESM Laboratory III. (1) Prerequisite: ESM 351. Continuation of ESM 351. Three laboratory hours per week.

ESM 353. Laboratory IIa. (2) Prerequisite: ESM 253 and corequisites: ESM 311, ESM 341 and ESM 361. Laboratory experiments and development of basic experimental techniques and instrumentation necessary for measurements in the areas of engineering science, mechanics and materials. One hour of lecture and three laboratory hours per week.

ESM 354. Laboratory IIIa. (2) Prerequisite: ESM 353 and corequisite: ESM 342. Continuation of ESM 353. One hour of lecture and three laboratory hours per week.

ESM 361. Introduction to Engineering Materials. (3) Prerequisites: Chemistry 101 and Math 142. Classifications of engineering materials. Introduction to property structure relationships. Ideal and defect atomic structures of solids with examples from metals, ceramics and polymers. Cold working and annealing effects. Phase equilibria in alloys; introduction to diffusional processes and transformation kinetics.

ESM 362. Mechanical Behavior and Strengthening of Solids. (3) Prerequisite: Chemistry 101, prerequisite or corequisite: ESM 341. Mechanical properties of materials including elastic behavior, plastic flow, fracture, creep, fatigue, elevated temperature effects. Correlation of properties with atomic and microscopic structure. Dislocation theory and its application to mechanical behavior and strengthening mechanisms. Alloy hardening effects; effects of processing and heat treatments. Applications in Fe-C alloys.

Courses for Advanced Undergraduates (and Graduates as Designated)

ESM 409. Automotive Power Plants (3) Prerequisite: ESM 312. Energy analysis of internal and external combustion engines for vehicular propulsion. Thermodynamic principles for combustion efficient use of fuel combustion, different types of fuel use, and pollutant control are studied.

ESM 411. Heat Transfer. (3) (3G) Prerequisites: ESM 311 and 342. Steady and unsteady state heat conduction, forced and natural heat convection principles, radiative heat transfer, heat exchangers.

ESM 412. Energy Conversion I. (3) (3G) Prerequisites: ESM 311 and 342. Application of principles of thermodynamics, fluid flow and heat transfer to internal combustion engines, compressors, turbines, heat exchangers, refrigeration and cryogenics.

ESM 422. Antennas. (3) (3G) Prerequisite or corequisite: ESM 322. A study of radiation into free space, the point source, thin linear antenna, arrays of linear elements, aperture antennas, impedance, methods of feeding, matching and termination. A survey of various antenna systems.

ESM 426. Acoustics. (3) (3G) Prerequisite or corequisite: ESM 322 or Physics 331. Vibrations and simple vibrating systems; radiating systems; plane waves of sound; dynamic analogies, microphones and other acoustic transducers; acoustic measurements.

ESM 434. Solid State Electronics. (3) (3G) Prerequisite: ESM 321 or ESM 331 or Physics 241 or consent of instructor. Electron theories of solids. Quantum mechanical foundations. Free electron and band models. Electron transport processes in metallic and nonmetallic conduction; diffusion and drift phenomena. Theory of semiconductors.

ESM 441. Intermediate Solid Mechanics. (3) (3G) Prerequisite: ESM 341. More advanced treatment of the topics covered in ESM 341. Included are failure theories, energy methods, plane stress — plane strain analysis, torsion of prismatic bars, curved beams, etc.

ESM 442. Intermediate Fluid Mechanics. (3) (3G) Prerequisites: ESM 311 and 342. A continuation of ESM 342. Topics covered include boundary layers, flow over body surfaces, compressible flow, potential flow, turbomachinery and propulsion devices.

ESM 444. Intermediate Dynamics. (3) (3G) Prerequisite: ESM 242 and Math 271. Further studies in the dynamics of particles and rigid bodies, with engineering applications. An introduction to Lagrange's equations of motion. Multi-degree-of-freedom vibrations.

ESM 451. ESM Projects Laboratory I. (1) Prerequisite: ESM 352 or consent of Department. The first of a two-semester sequence leading to a major laboratory project or design project involving integration of the various areas of engineering science. The student is responsible for conceiving the project, planning the work schedule, conducting the work and writing a final report.

ESM 452. ESM Projects Laboratory II. (2) Prerequisite: ESM 451. Continuation of ESM 451.

ESM 453. Senior Design I. (2) Prerequisite: ESM 354. Corequisite: Senior standing in engineering. The first of a two-semester sequence leading to a major integrative experience which emphasizes the application of mathematics, basic science and engineering science to the practice of engineering.

ESM 454. Senior Design II. (3) Prerequisite: ESM 453. A continuation of ESM 453 including project execution leading to an oral presentation and a final written report.

ESM 461. Solid State Transformations. (3) (3G) Prerequisite: ESM 361. Thermodynamics, morphology and kinetics of solid state transformations. Diffusion and absolute reaction rate theory; crystallographic nature of phase transformations; nucleation and growth processes; precipitation and oxidation reactions.

ESM 490. Special Topics in Engineering Science, Mechanics and Materials. (Variable credit 1-4 hours. May be repeated for credit.) Prerequisite: Consent of the Department. The course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics and physical sciences stem of the core curriculum. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

ESM 491. Undergraduate Research. (Variable credit 1-4 hours. May be repeated for credit.) Prerequisite: Consent of the Department. This course involves the independent study of a theoretical and/or experimental problem in a specialized area of engineering science, mechanics and materials. The student can pursue some particular area or problem to a depth much greater than can be undertaken within the scope of existing courses. The topics of the investigation may originate from the student or from the faculty member who will supervise the study.

ESM 492. Individualized Study. (Variable credit 1-3 hours. May be repeated for credit.) Prerequisite: Consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses.

ESM 499. Professional Development. (1) An examination of various aspects of engineering as a profession. The course will be graded on a pass/no credit basis.

THE 500-LEVEL GRADUATE COURSES ARE FIRST YEAR GRADUATE COURSES ALTHOUGH SOME ADVANCED SENIORS MAY ENROLL WITH PERMISSION OF THE DEPARTMENT OFFERING THE COURSE.

ESM 502. Introduction to Continua. (3) (3G) Prerequisites: ESM 311, 321, 341, 342, or consent of instructor. A unified treatment of those topics which are common to all continua. Stress, deformation and velocity fields, constitutive equations and field equations. Representative applications in solid, fluid and electromagnetic continua, including interaction problems.

ESM 513. Energy Conversion II. (3G) Prerequisite: ESM 311. Study of conversion of heat into power. Thermoelectric, magnetohydrodynamic engines, thermionic converters, solar and fuel cells.

ESM 514. Dynamics and Thermodynamics of Compressible Flow. (3G) Prerequisites: ESM 311 and 342. Compressible flow equations, isentropic flow, normal shock waves, Fanno and Raleigh line flows. Nonsteady one dimensional flow.

ESM 518. Thermal Environmental Engineering. (3) (3G) Prerequisite ESM 411. Application of the thermodynamic and heat transfer principles to the analysis of thermal environmental systems. Topics covered include thermodynamic properties of moist air, psychometric charts, transfer processes, heating and cooling of moist air, coils, physiological effects of thermal environments, food processing and storage.

ESM 531. Physical Electronics. (3) Prerequisite: ESM 322 or Physics 311 or consent of instructor. Dynamics of charged particles; electron motion in electromagnetic fields; types of electron emission; beam focusing; longitudinal and transverse beam waves; microwave generation; plasma parameters.

ESM 532. Quantum and Parametric Electronics. (3) (3G) Prerequisites: ESM 322 or Physics 331 or consent of instructor. Introduction to the concepts of quantum mechanics; spin energy levels; elementary masers, optical resonance; traveling wave tubes; backward wave oscillators.

ESM 546. Experimental Stress Analysis. (3) (3G) Two lectures and a two-hour lab per week. Prerequisite: ESM 341. Theoretical and experimental techniques of stress and strain analysis, with experimental emphasis on strain gages and instrumentation. Brittle coatings and photoelasticy are also considered.

ESM 562. Materials Production and Process. (3) (3G) Prerequisite: ESM 361 and consent of instructor. Applications of thermodynamics and chemistry to extractive process metallurgy. Fundamental principles of materials forming operations. Casting, mechanical working and joining methods.

ESM 564. Diffraction and Spectroscopic Studies of Matter. (3) (3G) Prerequisite: Senior or graduate standing and consent of instructor. Atomic arrangements in crystalline and non-crystalline forms of matter. Symmetry properties of crystals and correlations with anisotropic physical properties. X-ray diffraction and spectroscopic analysis of matter.

Courses for Graduate Students Only

ESM 614. Advanced Conductive Heat Transfer. (3G) Prerequisite: ESM 411 and graduate standing. Theory of steady and unsteady heat conduction in isotropic and anisotropic media. Treatment of concentrated and distributed heat sources. Application of the finite difference and finite element methods.

ESM 615. Transport Processes. (3G) Prerequisite: Graduate standing and consent of instructor. Unified field theory approach to the fluid transport of momentum, energy, mass and electrical charge. Statistical theories of turbulence and molecular transport. Multiphase systems, chemically reacting flows, ionized fluids, separation processes.

ESM 616. Separation Processes. (3G) Prerequisite: Graduate standing and consent of instructor. Theory of stagewise and continuous separation processes. Applications include distillation, extraction, absorption and thermal diffusion.

ESM 617. Chemical Reaction Engineering. (3G) Prerequisite: Graduate standing and consent of instructor. Theory and design of batch and flow chemical reactors.

ESM 618. Nuclear Reactor Theory. (3G) Prerequisites: Graduate standing and consent of instructor. Neutron transport theory applied to the engineering design of nuclear reactors. Generation, diffusion and slowing down of neutrons. Nuclear ballistics and collision phenomena. Reactor kinetics and thermodynamics. Homogenous and heterogenous reactors.

ESM 623. Advanced Topics in Electromagnetic Theory and Applications. (3G) Prerequisite: Graduate standing and consent of instructor. Possible topics include: advanced boundary value problems; nonlinear magnetic materials; wave guides and resonant cavities; magnetohydrodynamics and plasmas; relativistic effects; charged particle dynamics; radiation.

ESM 640. Applied Elasticity. (3G) Prerequisite: ESM 441 and graduate standing and consent of instructor. Topics from the theory of elasticity including but not limited to: beams on elastic foundations; general torsion and bending; contact stresses; simple problems in plates and shells; nonlinear elasticity.

ESM 641. Inelastic Behavior of Materials. (3G) Prerequisite: ESM 640 or consent of instructor. Introduction to plasticity and linear viscoelasticity. Topics include a study of yield criteria, plastic stress-strain relations, plastic hinge analysis, discrete visco-elastic models, the hereditary integral and selected boundary value problems.

ESM 645. Advanced Topics in Dynamics. (3G) Prerequisite: Graduate standing and consent of instructor. Courses in selected topics and advanced studies in dynamics such as Lagrangian dynamics, vibrations of continuous media, stress wave propagation and motion measurement.

ESM 666. Deformation and Fracture of Materials. (3G) Prerequisite: Graduate standing and consent of instructor. Macroscopic and microscopic aspects of elastic and plastic deformation and fracture; applications of dislocation theory to an interpretation and control of mechanical properties; temperature, strain rate and texture effects.

Department of Engineering Technology

Chairperson: Associate Professor Shelnutt
Associate Professors: Christie, Elliott, Grant, Liu, Mobley, Priebe, Willis
Assistant Professors: Holtum, Wang, Young, Chen
Lecturer: Ayala
Lecturers (Part-time): Cochrane, Daughtridge, Goldston, Powers, Ramirez, D. Seymour, W. Seymour, Wilhite, Silver, Warren

Engineering and technical education have undergone considerable change in the last 25 years. The complexities of space exploration, nuclear power, communications systems, environmental control, information processing, transportation systems, etc. have demanded a great increase in the involvement of professional engineers in theoretical and analytical work. This has resulted in a much greater emphasis upon research and development, science and mathematics in professional engineering curricula.

At the same time, after the more complex devices and systems have been engineered, their design, development and operation require the sophisticated knowledge and skills of practitioners of what might be called the "applied engineering sciences." Programs dedicated to fulfilling this urgent need are now developing rapidly over the United States. The aim and content of these programs are distinctly different from professional engineering curricula.

To provide the appropriate distinction from both the theoretical-professional engineers and from the engineering technicians who are graduated from the two-year technical institutes, the designation "engineering technologist" is being used throughout the United States for the graduates of four-year applied engineering or "engineering technology" curricula.

The two-year technical institute programs in North Carolina and in many other states provide excellent foundation for engineering technology curricula. Therefore, the engineering technology program at the University of North Carolina at Charlotte is limited to the junior and senior years, and an associate in applied science degree is required for admission.

Each of the following baccalaureate engineering technology curricula is accredited by the Accreditation Board for Engineering and Technology (ABET) (formerly ECPD).

Civil Engineering Technology
Electrical Engineering Technology
(formerly titled Computer Electronics Engineering Technology)
Mechanical Engineering Technology

The ABET is recognized by the National Commission on Accreditation as the appropriate accrediting agency of both engineering and engineering technology curricula.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ENGINEERING TECHNOLOGY

Residence. The residence requirements for the bachelor of engineering technology degree at the University of North Carolina at Charlotte specify that the last 30 semester hours of credit must be earned at UNCC and that the last 12 semester hours of work in the student's major field must be earned at this University.

Scholastic. A minimum level of scholastic achievement is required of all students in order to continue as a degree candidate. In order to be eligible for the B.E.T. degree, a minimum quality point average (QPA) of 2.00 on all courses attempted at UNCC is required. In addition, a minimum QPA of 2.00 on all courses attempted in the College of Engineering is required.

Course Requirements. Prerequisite courses for entering the engineering technology program normally taken at a technical institute or junior college, are listed on page 278.

In addition, the following UNCC courses are required for the B.E.T. degree.

Title	Semester Hours
Chemistry 101 (or other Natural Science)	3*
Computer Science 100	3
Economics 201 or 202	3
Humanities or Social Science Electives	12
Free Electives	3
Major Electives	6*
Engineering Analysis	6*
Specified courses in major area of study	28*
Total	64
Transfer credit for A.A.S. degree	64
Total number of semester hours required for B.E.T. degree	128

*Differences exist for CET, MET curricula.

Requirements for Admission. A student who has graduated from a technical institute or the technical division of a junior college and who wishes to enter the Engineering Technology program at UNCC must meet the following requirements:

1. Have an associate in applied science degree in one of the following fields:

   Civil, construction, electronic, industrial or mechanical engineering technology, design and drafting or architectural technology.

2. Have an overall quality-point average of at least 2.20 (based on the 4.0 system) on all courses taken at the technical institute, and

3. Have satisfactorily completed the prerequisite courses for the option which he plans to enter (see below).

There is considerable variance in the contents of technical institute programs throughout the United States. Should this result in entrance deficiencies, the student can usually remove these deficiencies at Central Piedmont Community College in Charlotte prior to admission to UNCC or during his first year at UNCC.

Background Courses Required for Entering the Bachelor of Engineering Technology Program

The student must have satisfactorily completed the following subjects in his or her two-year associate degree program.

Quarter hours indicated are minima.

Descriptive Title	Quarter Hours
English Composition, Technical Writing and/or Public Speaking	9
Algebra, Trigonometry and Analytic Geometry with Calculus	13
*Differential and Integral Calculus	5
General Physics (with Laboratory)	8
*Physics or Chemistry (with Laboratory)	4
*Humanities or Social Sciences	6
*Non-technical Subjects	3
Technical Courses in Major Area	48**
Total	96

Electrical
Drafting
D.C. Circuits
A.C. Circuits
Electronic Instruments and Measurements
Vacuum Tubes and Transistors
Transistor Amplifiers and Circuits
Pulse (Wave-shaping) Circuits
Communication Electronics or Control Systems

Mechanical
Drafting
Machine Processes
Statics
*Metallurgy
Strength of Materials
Kinematics or Mechanisms
Design Drafting or Machine Design
Basic Electrical Circuits (or Physics III, Electricity)

Civil
Drafting
*Surveying
Statics
Strength of Materials
*Properties of Concrete

Construction (Emphasis of Civil)
Architectural Drafting or Drafting
Architectural Engineering Materials and Methods
*Surveying
Statics and Strength of Materials
Construction Estimates and Costs
Codes, Contracts and Specifications
*Properties of Concrete

Industrial (Emphasis of Mechanical)

Drafting
Statics and Strength of Materials
Production Planning
Work Measurement, or Time and Motion, or Methods Analysis

*These courses can be taken at UNCC or at a local two-year college.

**The 48 hours of major work must include courses covering all of the subjects in any one of the areas shown on the following page.

CURRICULUM REQUIREMENTS FOR THE BACHELOR OF ENGINEERING TECHNOLOGY DEGREE

CIVIL ENGINEERING TECHNOLOGY PROGRAM

An ABET Accredited Baccalaureate Engineering Technology Curriculum

Junior Year

CET 311 Structural Analysis I	3	CET 312 Structural Analysis II	3
CET 321 Foundations and Earthwork	3	CET 332 Hydraulics	3
CET 351 Soil Testing Laboratory	1	CET 354 Asphalt Laboratory	1
ET 370 Basic Engineering Analysis	3	ET 371 Engineering Analysis I	3
CSC 100 Algorithmic Language	3	ECO 201 or 202 Principles of Economics-Macro or Micro	3
*CHE 101 Principles of Chemistry or ES 102 Earth Science-Geology (a)	4	Humanities or Social Science Electives (b) (100-level)	3
	17		16

Senior Year

CET 462 Introduction to Environmental Engineering	3	CET 411 Reinforced Concrete Design	3
Free Elective (d)	3	Major Elective (c)	6
ET 473 Engineering Analysis III	3	Humanities or Social Science Elective (b) (300 level)	3
Major Elective (c)	1	CET 441 Highway Design and Construction	3
Humanities or Social Science Elective (b) (100-level)	3		
Humanities or Social Science Elective (b) (200-level)	3		
	16		15

Land Surveying Option of Civil Engineering Technology. The curriculum in Civil Engineering Technology which includes not less than six semester hours of surveying subjects (CET 472 and CET 473) is accredited by the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, and such curriculum will be accepted as credit for four years of land surveying experience towards the registration requirements of this board.

*Students who are primarily interested in environmental technology must take Chemistry 101; those who are primarily interested in construction must take Earth Science 102.

Civil Engineering Technology

Construction Engineering Technology Emphasis

Junior Year

CET 311 Structural Analysis I	3	CET 312 Structural Analysis II	3
CET 321 Foundations and Earthwork	3	MET 481 HVAC and Mechanical Systems	3
CET 351 Soil Testing Laboratory	1	ET 371 Engineering Analysis I	3
ET 370 Basic Engineering Analysis	3	ECO 201 or 202 Principles of Economics-Macro or Micro	3
CSC 100 Algorithmic Languages	3	Humanities or Social Science Elective (b) (100-level)	3
ES 102 Earth Science-Geology	4		
	17		15

Senior Year

CET 412 Structural Steel Design	3	CET 411 Reinforced Concrete Design	3
CET 481 Cost Estimating I	3	Major Elective (c)	3
ET 482 Project Management Tech	3	Major Elective (c)	3
CET 355 Construction Materials Lab	1	Humanities or Social Science Elective (b) (300-level)	3
Humanities or Social Science Elective (b) (100-level)	3	Major Elective (c)	1
Humanities or Social Science Elective (b) (200-level)	3	Free Elective (d)	3
	16		16

ELECTRICAL ENGINEERING TECHNOLOGY

An ABET Accredited Baccalaureate Engineering Technology Curriculum

Computer/Electronics Engineering Technology Emphasis

Junior Year

EET 351 Electromechanical Lab	1	EET 311 Analysis of Linear Networks	3
EET 381 Introduction to Logical Design	3	EET 312 Semiconductors	3
*ET 371 Engineering Analysis I	3	EET 382 Logical Design of Sequential Circuits	3
CSC 100 Algorithmic Languages	3	ET 471 Engineering Analysis II	3
CHE 101 Principles of Chemistry (a)	3	Humanities or Social Science Elective (b)	3
ECO 201 or 202 Principles of Economics-Macro or Micro	3	EET 354 Digital Electronics Lab	1
	16		16

Senior Year

EET 481 Computer Design	3	EET 412 Digital Electronics	3
EET 451 Digital Computer Lab	1	EET 454 Semiconductor Circuits	1
EET 411 Technology of Active Networks	3	Humanities or Social Science Elective (b)	3
EET 385 Minicomputer Programming	3	Humanities or Social Science Elective (b)	3
Free Elective (d)	3	Major Elective (c)	3
Humanities or Social Science Elective (b)	3	Major Elective (c)	3
	16		16

*For students who do not have a strong background in algebra and trigonometry, it is recommended that ET 370 be taken prior to ET 371. This should be taken during the summer preceding his or her regular first semester if the student plans to complete the program in two years.

Electrical Engineering Technology

Electronics Emphasis

Junior Year

EET 351 Electromechanical Lab	1	EET 311 Analysis of Linear Networks	3
EET 381 Introduction to Logical Design	3	EET 312 Semiconductors	3
*ET 371 Engineering Analysis I	3	EET 382 Logical Design of Sequential Circuits	3
CSC 100 Algorithmic Languages	3	ET 471 Engineering Analysis II	3
CHE 101 Principles of Chemistry (a)	3	Humanities or Social Science Elective (b)	3
ECO 201 or 202 Principles of Economics-Macro or Micro	3	EET 354 Digital Electronics Lab	1
	16		16

Senior Year

EET 431 Transmission Lines and Antennas	3	EET 412 Digital Electronics	3
EET 453 Transmission Lines and Antennas Lab	1	EET 454 Semiconductor Circuits	1
EET 411 Technology of Active Networks	3	EET 422 Automatic Controls	3
Free Elective (d)	3	EET 483 Modulation and Transmission	3
Humanities or Social Science Electives (b)	6	Major Elective (c)	3
		Humanities or Social Science Elective (b)	3
	16		16

*For students who do not have a strong background in algebra and trigonometry, it is recommended that ET 370 be taken prior to ET 371. This should be taken during the summer preceding his or her regular first semester if the student plans to complete the program in two years.

MECHANICAL ENGINEERING TECHNOLOGY

An ABET Accredited Baccalaureate Engineering Technology Curriculum

Junior Year

MET 322 Strength of Materials	3	MET 312 Dynamics	4
MET 331 Fluid Mechanics	3	MET 411 Machine Design I	3
MET 352 Stress Analysis Lab	1	MET 373 Instrumentation and Control	4
*ET 371 Engineering Analysis I	3	MET 341 Thermodynamics	3
CSC 100 Algorithmic Languages	3	MET 351 Fluid Mechanics Lab	1
CHE 101 Principles of Chemistry	3		
	16		15

Senior Year

MET 421 Senior Design Project I	2	MET 422 Senior Design Project II	2
MET 453 Thermodynamics Lab	1	ECO 201 or 202 Principles of Economics Macro/Mirco	3
MET 452 Instrumentation Lab	1	Major Elective (c)	3
ET 473 Engineering Analysis III	3	Humanities or Social Science Elective (200-level) (b)	3
Major Elective	3	Humanities or Social Science Elective (300-level) (b)	3
Humanities or Social Science Elective (100-level)(b)	3	Free Elective (d)	3
Humanities or Social Science Elective (100-level) (b)	3		
	16		17

Mechanical Engineering Technology

Industrial Engineering Technology Emphasis

This program is offered as a part-time evening program. With due regard for prerequisites, and by taking two courses per semester (including summer) it should be possible to complete the program in four years, essentially in the sequence shown.

*ET 371 Engineering Analysis I	3	MAT 211 Introduction to Operations Research	3
MET 331 Fluid Mechanics	3	ECO 201 or 202 Principles of Economics Macro/Micro	3
CSC 100 Algorithmic Languages	3	IET 421 Plant Layout	3
IET 311 Methods Analysis	3	IET 451 Plant Layout Lab	1
IET 351 Methods Analysis Lab	1	Humanities or Social Science Elective (200-level) (b)	3
Humanities or Social Science Elective (100-level) (b)	6	GGY 313 Manufacturing Geography	3
MAT 122 Elements of Statistics	3	IET 412 Quality Control	3
MET 322 Strength of Materials	3	IET 452 Directed Projects	1
MET 351 Fluid Mechanics Lab	1	Major Elective	3
MET 312 Dynamics	4	Humanities or Social Science Elective (300-level) (b)	3
IET 411 Production Control Systems	3	Free Elective	3
IET 431 Engineering Economics	3		65

*For students who do not have a strong background in algebra and trigonometry, it is recommended that ET 370 be taken prior to ET 371. This should be taken during the summer preceding his or her regular first semester if the student plans to complete the program in two years.

Notes

(a) A student who has previously taken a college-level course in general chemistry shall substitute for this requirement another course in chemistry, physics, biology or earth science 101, 341, or 344, or an approved course in physics, as shown in the table below.

Students who have previously taken	**Shall take at UNCC**
3 quarters of physics and no chemistry	Chemistry 101
2 quarters of physics and 1 quarter of chemistry	Physics 102 (Physics 101 with permission)
3 quarters of physics and at least 1 quarter of chemistry (4 qtr. hrs).	Earth Science 101 or 102 Biology 101 or Physics 103

(b) Humanities and social science electives must be selected from a current list of approved courses which is maintained in the departmental office and shall include a minimum of one 200 and one 300-level course.

(c) Major electives must be 300 or 400-level courses related to the student's field of specialization, or 300 or 400-level courses in business administration.

(d) Free electives are intended to provide the student an opportunity:

(1) to take an additional departmental major course,

(2) to investigate other areas of interest outside the College of Engineering,

(3) to support an upper-division sequence in the humanities or social science, or

(4) to study a foreign language.

Courses selected as free electives should normally be 200-level or higher and must be approved by the student's adviser after the student has outlined the sequence of electives that he or she plans to pursue. No course may be taken for elective credit that covers material for which the student has received credit in another course. A maximum of three semester hours credit is allowed in physical education.

COURSE DESCRIPTIONS

ENGINEERING TECHNOLOGY

An engineering technology course may be used for elective or minor credit by a student in another major only with the prior approval of the student's major department and the Department of Engineering Technology.

ET 370. Basic Engineering Analysis. (3) Prerequisite: College algebra, trigonometry and analytic geometry. A course designed to give students intensive practice in the methods of solving engineering problems which require a knowledge of algebra, determinants, trigonometry and analytic geometry.

ET 371. Engineering Analysis I. (3) Prerequisite: ET 370 and differential and integral calculus. Methods of solving engineering problems which involve the differentiation and integration of algebraic, trigonometric and logarithmic functions; use of integral tables.

ET 471. Engineering Analysis II. (3) Prerequisite: ET 371. A study of constant coefficient linear differential equations, including nonhomogeneous equations; Laplace transforms and the use of Laplace transform tables; applications to the analysis of dynamic systems.

ET 473. Engineering Analysis III. (3) Prerequisite: CSC 100 and ET 371. An introduction to elementary numerical methods which are useful in the solution of engineering problems on the digital computer. Emphasis is placed on applications to civil and mechanical engineering technology.

ET 481. Computer Graphics Technology. (3) A study of the use of computer graphics as a design drafting tool. The course will utilize computer driven plotters and digitizers to prepare engineering drawings and illustrations.

ET 482. Project Management Technology. (3) Use of CPM and other network analysis methods for planning, managing and controlling projects.

ET 490. Special Topics in Engineering Technology. (Variable credit, 1-4 hours. May be repeated for credit.) Prerequisite: Senior standing in Engineering Technology or consent of the Department. This course will be devoted to specific new areas which are emerging in the various fields of engineering technology. Given at the senior level, the course will build upon the knowledge the students have gained from their engineering technology curriculum.

CIVIL ENGINEERING TECHNOLOGY

CET 250. Properties of Materials. (1) Laboratory testing of concrete, metal and wood materials. Emphasis on the development and analysis of stress-strain characteristics, using

ASTM specifications with regard to testing procedures. Three laboratory hours per week. No credit towards degree requirements for engineering technology majors.

CET 311. Structural Analysis I. (3) Prerequisite: Elementary courses in statics and strength of materials. Prerequisite or corequisite: ET 370. An introduction to the basic concepts and principles of structural analysis relating to beams, trusses and frame structures. Analysis of statically determinate structures under fixed and moving loads, influence lines for moving loads. Approximate analysis of indeterminate structures. Emphasis on practical aspects of structural analysis.

CET 312. Structural Analysis II. (3) Prerequisite: CET 311. Deflection of structures. Analysis of statically indeterminate structures using the methods of three-moments, consistent distortions, slope deflection and moment-distribution. An introduction to matrix methods of structural analysis.

CET 321. Foundations and Earthwork. (3) Prerequisite or corequisite: ET 370. A study of the basic design and construction of foundations. The background theories are generally introduced in concise forms as formulas or charts. Emphasis on practical aspects of foundation design and earthwork construction.

CET 332. Hydraulics. (3) Prerequisite or corequisite: ET 370. A study of the fundamental principles of hydraulics and their applications in engineering practice, including the fundamentals of fluid flow through orifices, tubes and pipes, in open channels, and over weirs.

CET 351. Soil Testing Laboratory. (1) Prerequisite or corequisite: CET 321. A laboratory designed to familiarize the student with the common laboratory soil tests and analysis procedures with emphasis on the significance of the various tests, the testing procedures and the detailed computations.

CET 354. Asphalt and Asphalt Mixtures Laboratory. (1) The study of physical properties of asphalt, of aggregates and their combinations, principles and practice in the design, construction and control of asphalt mixtures; laboratory tests for asphalts, aggregates and mixture design including specimen preparation and stability evaluation. Three laboratory hours per week.

CET 355. Construction Materials Laboratory (1) Three laboratory hours each week. A review of applicable standard specifications and methods of testing a variety of construction materials and practice in the laboratory and field testing and inspection of those materials.

CET 411. Reinforced Concrete Design. (3) Prerequisite or corequisite: CET 312. Design of rectangular beams, T-beams, columns, reinforced concrete floor systems and reinforced concrete footings, according to the ACI code.

CET 412. Structural Steel Design. (3) Prerequisite: CET 312. Design of beams and columns, floor framing, tension and compression members, riveted and welded connections, and place girders according to AISC specifications.

CET 413. Wood Structural Technology. (3) Prerequisite: CET 311. Design of floors, beams, columns and trusses of both solid and glued laminated wood; includes wood joints and concrete forms.

CET 441. Highway Design and Construction. (3) An introduction to highway planning, economic considerations and traffic engineering. Design and construction of modern highways including grade separations and interchanges.

CET 442. Pavement Design. (3) Prerequisite: CET 441. A study of stresses in flexible and rigid pavements, and properties of pavement components. Design of rigid and flexible pavements. A discussion of pavement performance and failures and of pavement strengthening.

CET 451. Photogrammetry. (1) Prerequisite: Course in elementary surveying and CSC 100. An outline of the fundamental principles of photogrammetry and photogrammetric procedures used in engineering practice. Students learn how to use modern photogrammetric equipment.

CET 452. Environmental Laboratory. (1) Prerequisite or corequisite: CET 462. A laboratory designed to familiarize the student with the analysis of water and sewage and with problems related to environmental control.

CET 453. Construction Engineering Technology Field Laboratory. (1) Prerequisite: Senior standing. A synthesis of prior work, using fundamental principles as applied in a directed project. Three laboratory hours per week.

CET 462. Introduction to Environmental Engineering. (3) Prerequisite: CET 332. The study of water supply, treatment and distribution and of liquid-waste disposal systems.

CET 464. Introduction to Urban Engineering. (3) The study of city planning, including street layout and lighting and the design of water, sewerage, storm drain, and solid-waste collection and disposal systems. Street maintenance and traffic analysis; air pollution control.

CET 466. Introduction to Air Pollution Control Technology. (3) Prerequisite: Consent of instructor. The study of the sources of air pollution, air quality and emission standards, monitoring of air quality and the control of air pollution.

CET 467. Introductory Public Health Engineering Technology. (3) Prerequisite: Consent of instructor. A study of the public health engineering in rural, urban and industrial centers, with emphasis on water, housing, heating, cooling, ventilation, noise, milk, food, insects and rodents, monitoring and control.

CET 472. Land Surveying. (3) Prerequisites: Basic course in surveying. A study of the advanced principles and practice of land surveying. The study will prepare the student for the National Council of Engineering Examiners Land Surveyors examination and the State examination for land surveyors.

CET 473. Control Surveying. (3) Prerequisite: Basic course in surveying. A study of the theory, equipment and data reduction of electronic distance measurements; control specifications, methods and problems in obtaining large area angular measurements; precise leveling triangulation with introduction to least square techniques.

CET 481. Cost Estimating I. (3) This course provides the student with the understanding of the methods used to estimate costs of construction activities. The study develops the methods and procedures for preparing quantity surveys and to estimate labor and equipment requirements.

CET 482. Cost Estimating II. (3) Prerequisite: CET 481. This course provides the student with an understanding of estimating techniques applied to project work. Topics include subcontractors, plant and overhead costs, profit, bidding strategy, contract law, etc.

ELECTRICAL ENGINEERING TECHNOLOGY

EET 311. Analysis of Linear Networks. (3) Prerequisite: ET 371. Review of complex numbers and phasor notation. Steady state analysis of electrical networks using Kirchoff's laws; applications of various network theorems; magnetically coupled circuits; three-phase circuits.

EET 312. Semiconductors. (3) Prerequisite or corequisite: EET and EET 381. A study of the atomic structure and physical properties of semiconductor materials followed by a study of specific devices, such as unijunctions, field-effect transistors. Applications of these devices in specific circuits.

EET 351. Electromechanical Technology Laboratory. (1) Prerequisite or corequisite: EET 381. Experiments illustrating basic motor-generator characteristics, the principles of operation and applications of feedback control systems, and the design of relay combinational switching circuits. Emphasis is placed on the writing and preparation of technical reports. Three laboratory hours per week.

EET 354. Digital Electronics Laboratory. (1) Prerequisite: EET 351. Prerequisite or corequisite: EET 382. Experiments illustrating the characteristics of various types of digital integrated circuits and the design and implementation of sequential switching networks using integrated circuits. Three laboratory hours per week.

EET 381. Introduction to Logical Design. (3) An introduction to Boolean algebra. Disjunctive and conjunctive canonical forms. Applications to the analysis and design of combinational switching circuits utilizing both relays and semiconductors. Minimization of switching functions. Design of multiple-output networks.

EET 382. Logical Design of Sequential Circuits. (3) Prerequisite: EET 381. The description and classification of sequential switching circuits; the operation of the principal types of flip-flops. The analysis and design of pulse-mode and fundamental-mode sequential circuits including state-table reduction procedures.

EET 385. Minicomputer Programming. (3) Prerequisites: EET 381 and CSC 100. The major emphasis is placed on the principles of assembly-language programming of digital computers. Students learn to program a small-scale computer, to operate it and to run the programs which they write. The basic principles of operation of a digital computer are covered, especially as to how the computer responds internally to different elements in the program.

EET 411. Technology of Active Networks. (3) Prerequisites: EET 311 and EET 312. Prerequisite or corequisite: ET 471. A study of the black box approach to the analysis of amplifiers in general, junction transistors, small signal models, field effect transistors, feedback principles and applications, and pulse circuits.

EET 412. Digital Electronics. (3) Prerequisites: EET 382 and EET 411. The analysis and design of pulse circuits using discrete components and the analysis of various forms of digital integrated circuits, including RTL, DTL, TTL, ECL and MOS logic. Other areas studied include the transmission of digital signals, power supply bussing and decoupling, crosstalk and system noise.

EET 422. Automatic Controls. (3) Prerequisites: EET 411 and ET 471. Prerequisite or corequisite: EET 412. A study of control circuits and some discrete circuits with applications. Some of the linear circuits types studies are: operational amplifiers, voltage regulators, comparators and timers. The discrete circuits will include thryistors, AC/DC converters and other naturally commutated circuits.

EET 431. Transmission Lines and Antennas. (3) Prerequisites: EET 311 and EET 471. A study of transmission lines and antennas with emphasis on measurement and design techniques. Topics covered include the Smith Chart, impedance matching techniques, networks, wave propagation and radiation, antennas, waveguides, resonators and components.

EET 451. Digital Computer Laboratory. (1) Prerequisite: EET 354. Prerequisite or corequisite: EET 481, EET 385. Students learn to communicate with a digital computer by means of a teletype terminal. They learn to operate an analog computer and to use it for solving certain types of differential equations. Experiments also illustrate the characteristics and applications of operational amplifiers. A/D converters and D/A converters; interfacing the digital computer with analog devices; and displaying of information. Three laboratory hours per week.

EET 453. Transmission Lines and Antennas Laboratory. (1) Prerequisite or corequisite: EET 431. A laboratory course correlated with EET 431. The student performs laboratory experiments involving RF measurements on transmission lines and antennas using RF impedance bridges, slotted lines, antennas pattern measuring equipment, etc.

EET 454. Semiconductor Circuits Laboratory. (1) Prerequisite or corequisite: EET 412, EET 451. Experiments illustrate (1) the characteristics of transistors and other semiconductor devices and methods of measuring various transistor parameters; (2) the characteristics of several types of electrical networks, especially lead/lag networks, and also the determination of gain/phase characteristics (Bode plots) of amplifiers; and (3) the design of combinational switching networks and their implementation with discrete components. Three laboratory hours per week.

EET 461. Industrial Instrumentation. (3) Prerequisites: EET 311 or consent of instructor. A review of the basic physical principles that apply to the design of sensors and transducers, followed by a study of pneumatic and electrical measuring instruments and transducers. Emphasis is on the different methods available for measuring such quantities as pressure, temperature and flow rate and on the selection of the best method for typical applications that exist in the process industries.

EET 481. Computer Design. (3) Prerequisites: EET 382. Prerequisite or corequisite: EET 385. The function and operation of the various elements that comprise a digital computer; methods for performing arithmetic operations, types and operation of memories; operation of I/O equipment; machine codes and communication with the computer.

EET 483. Modulation and Transmission. (3) Prerequisite: ET 471. Prerequisite or corequisite: EET 411. An introduction to Fourier series. Frequency analysis of signals; amplitude, phase and pulse modulation methods.

EET 484. Design of Real-Time Systems. (3) Prerequisites: ET 371 or MAT 120 and EET 385 or CSC 201. An introduction to the nature, characteristics and applications of real-time computer systems. Basic probability theory and a brief introduction to queuing theory. The principal factors and techniques involved in the design of large-scale, real-time data-processing systems.

EET 486. Microcomputer Applications. (3) Prerequisite: EET 481. Two (2) lecture hours and three (3) laboratory hours each week. A thorough study of the organization, capabilities and techniques of utilization of the Intel MCS-4 microcomputer set. Laboratory design projects will give the student the opportunity to design the software and the hardware interface for one or more typical applications of the MCS-4 microcomputer set.

MECHANICAL ENGINEERING TECHNOLOGY

MET 312. Dynamics. (4) Prerequisite: Differential and integral calculus. The dynamic behavior of machine elements; translation and rotation of a rigid body (including a review of topics in kinematics), the principles of conservation of energy and momentum.

MET 322. Strength of Materials. (3) Prerequisite or corequisite: Differential and integral calculus. A course designed to extend the student's knowledge of basic strength of materials with emphasis on applications to engineering problems. Included are the stress-strain relationships resulting from direct loads, torsional loads and bending loads, and also the results obtained from applying more than one of these loads simultaneously. Beam deflection and column loading.

MET 331. Fluid Mechanics. (3) A study of the fundamental principles of fluid mechanics. Topics covered include manometry, buoyancy, forces on submerged bodies. Bernoulli's equation with applications, orifices, pipe losses and an introduction to hydrodynamics.

MET 341. Thermodynamics. (3) Prerequisites: ET 371 and CHEM 101. The perfect gas law; the first and second laws of thermodynamics and their application to power and refrigeration cycles. Gases and mixtures of gases, especially air and water vapor. Introduction to heat transfer with applications.

MET 351. Fluid Mechanics Laboratory. (1) Prerequisite or corequisite: MET 331. Laboratory experiments relating to flow through conduits, the experimental determination of fluid properties, and the behavior of fluids in static and dynamic equilibrium.

MET 352. Stress Analysis Laboratory. (1) Prerequisite or corequisite: MET 322. Experiments illustrating stress-strain relationships in engineering materials and the use of brittle coating, photo-elasticity and electrical-resistance strain gauges.

MET 373. Instrumentation and Controls. (4) Prerequisite: ET 371. An introductory study of instrumentation for measurement and control of physical variables, with emphasis on electronic systems. Includes a review of basic circuit analysis, electrical instruments, sensors and measurement principles and a survey of automatic controls from a systems point of view.

MET 411. Machine Design I. (3) Prerequisites: MET 312 and MET 322. The first part of a two-semester course designed to apply previously acquired skills, along with newly attained ones, toward the design and analysis of machine components.

MET 412. Machine Design II. (3) Prerequisite: MET 411. A continuation of MET 411 with emphasis on new methods of problem solving and opportunities to integrate previously attained skills and knowledge into the design and optimization of machine system.

MET 421 and MET 422. Senior Design Project I and II. Prerequisites: MET 341, MET 411. Corerequisite or prerequisites: MET 473 or MET 462, and MET 472 or permission. A two-semester course sequence in which each student conceives, proposes and implements a senior level design project which demonstrates his abilities as developed by the course work he has taken thus far. Each student uses industrial project planning techniques to complete a project proposal and plans and makes substantial progress toward implementation in the first semester and completes the project including design evaluation during the second semester. (Two credits each semester: One hour class and three hours lab.)

MET 432. Fluid Power. (3) Prerequisite: MET 331. Mechanical and fluid power and the conversion of one to the other. Components and system efficiencies including those consisting of cascaded components. Performance evaluation of such hydraulic components as pumps, motors, valves and metering devices. Viscosity, bulk modulus, noise, optimum performance and system design will be considered.

MET 441. Air Conditioning System Components. (3) Prerequisite: MET 341. A study of the functions and operating characteristics of the major components of heating, refrigerating and air conditioning systems, including refrigerating machines, heat pumps, boilers, furnaces, heat exchangers, solar collectors, fans and pumps. Emphasis on sizing, economies and performance characteristics. Includes coverage of psychrometric principles and fan and pump laws.

MET 443. Modern Techniques in Energy Conservation and Utilization. (3) Prerequisites: MET 341 or consent of the instructor. An analysis of the traditional energy utilization systems and modifications thereof. Survey of modern techniques of energy conversion and energy conservation. Topics that may be covered are solar energy, basic nuclear reactor technology, ammonia based Rankine cycle, absorption refrigeration cycle, heat pump cycle, techniques for energy conservation in new construction and techniques for retrofitting existing energy utilization systems.

MET 452. Instrumentation Laboratory. (1) Prerequisite or corequisite: MET 373. A laboratory designed to give students practice in the use of the various instrumentation devices studied in MET 373.

MET 453. Thermodynamics and Heat Transfer Laboratory. (1) Prerequisite or corequisite: MET 341. Design projects and experimentation involving the fundamental principles of thermodynamics and heat transfer. Three laboratory hours per week.

MET 481. Heating, Ventilating, Air Conditioning, Plumbing and Electrical Construction Systems Technology. (3) Basic theory and practical application of heating, ventilating, air conditioning, plumbing and electrical systems construction. The course will include a study of national fire and plumbing codes.

Mechanical Engineering Technology — Industrial Engineering Technology Emphasis

IET 311. Methods Analysis. (3) Analysis of work methods; a study of work measurement systems.

IET 351. Method Analysis Laboratory. (1) Prerequisite or corequisite: IET 311. Analysis and design of work methods; principles of motion-study; work measurement by direct and predetermined motion-time systems.

IET 411. Production Control Systems. (3) Principles, analysis and design of production and inventory planning and control. Demand forecasting, production scheduling and control systems and introduction to CPM.

IET 412. Quality Control. (3) Prerequisite: MAT 122. The theory and application of inspection sampling plans and control charts for the design, specification and control of product quality.

IET 421. Plant Layout. (3) Prerequisite: IET 311. Designing a plant or office with respect to material handling, machine location, auxiliary services, capital requirements, safety and personnel organization.

IET 431. Engineering Economics. (3) Principles of evaluating alternative engineering proposals. Economic measures of effectiveness, costs and cost estimation, basic comparative models, breakeven and replacement analysis.

IET 441. Occupational Safety. (3) Causes and prevention of industrial accidents. Hazardous processes and material. Design of accident prevention programs.

IET 442. Occupational Health Technology. (3) Methodology and philosophy of evaluating and monitoring the work environment for human stresses and toxic substances which affect the health of the worker. The following topics are included: Gases, vapors, fumes and dust; radioactivity hazards; occupational diseases; thermal stress; illumination and exhaust ventilation.

IET 451. Plant Layout and Materials Handling Laboratory. (1) Prerequisite or corequisite: IET 421. Analysis and design of material handling systems; specifications of system components.

IET 452. Directed Projects. (1) Prerequisite: Senior standing. A synthesis of prior work using fundamental principles applied in a directed project. Design of production systems and sub-systems.

IET 462. Human Factors. (3) Human capabilities and limitations affecting communications and response in man-machine systems. Physiological and psychological fundamentals.

Department of Urban and Environmental Engineering

Chairperson: Professor King
Professor: Celanese Professor of Civil Engineering Bell
Associate Professors: Bayer, Evett, Iverson
Assistant Professors: Budhu, Glaum, Janardhanam, Wu
Lecturers: Binford, Britton, Browning, Hilger

One of the major thrusts of the University of North Carolina at Charlotte is the establishment of ways in which urban problems can be identified and solutions found. The College of Engineering has in turn initiated a program in which urban and environmental aspects of engineering are emphasized. Traditionally many of these concerns have been treated within civil engineering, and all of the civil engineering courses at UNCC have been continued within the Department of Urban and Environmental Engineering. In the curriculum, urban and environmental issues are the bases used for example problems, for student exercises and for independent study projects. In this Department, the candidate for the degree of Bachelor of Science in Engineering may take a curriculum that prepares him or her to become a professional civil engineer upon completion of legal requirements as specified by the individual states.

The urban and non-urban problems of the environment can neither be distinctly separated, nor dealt with independently. The traditional functions of civil engineers to provide buildings and bridges, dams, harbors and canals, railroads and other facilities must be continued, while at the same time the urgent problems of the environment are assessed and solved. Thus, the Department emphasizes urban problem areas associated with structural engineering, transportation engineering and environmental engineering. For example, more emphasis is given to metropolitan traffic, while concern is continued in the area of interstate highways; and more emphasis is given to water pollution problems while continuing the study of water resource systems and the building of water delivery systems for an increasing population.

Some students will wish to plan early in their undergraduate careers for continuation of their engineering studies beyond the first degree. The large number of fields of graduate study which can logically follow the curriculum offered by the Department of Urban and Environmental Engineering may influence how each student plans a progam of study. The minor option sequence allows flexibility for concentration in specific areas, and each student will design a minor option program with the advice and approval of his or her adviser in order to achieve an individual goal.

The minor option must contain at least six hours of course work dealing with engineering science, analysis, synthesis or design with the remaining nine hours being in engineering, science, mathematics, business, communications or architecture.

The curriculum in Urban and Environmental Engineering is accredited by the Accreditation Board for Engineering and Technology (formerly ECPD).

The 55 hours of departmental requirements for UEE are:

UEE 102 — Computer Applications	2
UEE 201 — Engineering Drawing	2
UEE 252 — UEE Measurements Lab	2
PHY 252 — Experimental Physics II	1
EAD 261 — Basic Electrical Engineering I	3
ESM 242 — Engineering Mechanics II	3
ESM 341 — Mechanical Behavior of Solids	3
ESM 342 — Fluid Mechanics	3
UEE 321 — Structural Analysis	3
UEE 341 — Environmental Engineering I	3
UEE 351 — Environmental Laboratory	2
UEE 352 — Transportation Laboratory	2
UEE 361 — Transportation Engineering	3
UEE 421 — Structural Steel Design I	3
UEE 425 — Reinforced Concrete Design I	3
UEE 451 — Concrete and Steel Laboratory	2
UEE 452 — Geotechnical Laboratory	2
UEE 468 — Geotechnical Engineering	3
UEE 471 — UEE Systems and Design I	3
UEE 472 — UEE Systems and Design II	3
UEE 481 — Professional Development	1
UEE XXX — Departmental Elective	3
	55

CURRICULUM OUTLINE FOR THE BACHELOR OF SCIENCE IN ENGINEERING

URBAN AND ENVIRONMENTAL ENGINEERING

Freshman Year

MAT 141 Calculus I	4	MAT 142 Calculus II	4
CHE 101 Principles of Chemistry	3	PHY 221 Dynamics	3
CHE 101L Chemistry Lab	1	PHY 251 Experimental Physics I	1
ENG 101 English	3	Science Elective	3
EGR 100 Intro. to Engineering	1	UEE 102 Computer Applications	2
Humanities or Social Science	3	Humanities or Social Science	3
	15		16

Sophomore Year

MAT 241 Calculus III	3	MAT 271 Differential Equations	3
MAT 222 Elements of Statistics	3	PHY 241 Intro. to Modern Physics	3
PHY 231 Electricity & Magnetism	3	ESM 242 Engineering Mechanics II	3
PHY 252 Experimental Physics II	1	ESM 341 Intro. to Solid Mechanics	3
ESM 241 Engineering Mechanics I	3	UEE 252 Measurements Lab	2
Humanities or Social Science	3	ECO 202 Principles of Economics	3
UEE 201 Engineering Drawing	2		
	18		17

Junior Year

ESM 342 Intro. to Fluid Mechanics	3	ESM 311 Thermodynamics I	3
EAD 261 Basic Electrical Engr. I	3	UEE 352 Transportation Lab	2
UEE 321 Structural Analysis	3	Minor	3
UEE 341 Environmental Engr. I	3	Minor	3
UEE 351 Environmental Lab	2	Minor	3
UEE 361 Transportation Engr.	3	Humanities or Social Science	3
	17		17

Senior Year

UEE 421 Steel Design	3	UEE 452 Geotechnical Lab.	2
UEE 425 Concrete Design	3	UEE 472 Systems and Design II	3
UEE 451 Concrete and Steel Lab	2	UEE XXX Department Elective	3
UEE 468 Geotechnical Engineering	3	Minor	3
UEE 471 Systems and Design I	3	Minor	3
Humanities or Social Science	3	UEE 481 Professional Development	1
	17		15

COURSE DESCRIPTIONS

URBAN AND ENVIRONMENTAL ENGINEERING

THE 500-LEVEL GRADUATE COURSES ARE FIRST-YEAR GRADUATE COURSES ALTHOUGH SOME ADVANCED SENIORS MAY ENROLL WITH PERMISSION OF THE DEPARTMENT OFFERING THE COURSE.

Structural Engineering

UEE 281. Concepts of Structural Engineering I. (3) Prerequisite: Mathematics 120 or Computer Science 100. For students not majoring in engineering or technology. A brief introduction to structural materials and the concepts of stress and strain as applied to structures; structural statics; beams and columns; laboratory demonstrations and class problems.

UEE 282. Concepts of Structural Engineering II. (3) Prerequisite: UEE 281. A continuation of UEE 281 involving more complex structures; interconnected beams and columns; steel and reinforced concrete; buildings and bridges; arches, plates and shells; live loads, wind loads and earthquake effects; laboratory demonstrations and class problems; computer applications in structural problems.

UEE 321. Structural Analysis. (3) Prerequisites: ESM 341. Analysis of statically determinate and indeterminate beams, trusses and frames under fixed and moving loads to include shear and moment diagrams, rough deflected shapes and deflections. Influence lines and criteria for moving loads. Indeterminate analyses to include methods of slope deflection, moment area, moment distribution and conjugate beams.

UEE 421. Structural Steel Design I. (3) Prerequisite: UEE 321. Analysis and design of structural steel components with emphasis on the fundamental theories necessary for a thorough understanding of the design procedure. Individual members are considered, including pure tension, pure compression, uniaxial and biaxial bending and combined bending and axial stresses. Current AISC Specifications used.

UEE 422. Structural Steel Design II. (3) (3G) Prerequisite: UEE 421 with grade of C or better. Analysis and design of structural steel systems with emphasis on the fundamental theories necessary for a thorough understanding of the design of complete structures. Welded, riveted and bolted connections. Design of steel buildings, composite design, built-up beams and plate girders. Plastic analysis and design. Emphasis to be placed on various topics partially dependent upon student interest and goals. Current AISC specifications used.

UEE 424. Advanced Structural Analysis. (3) (3G) Prerequisites: UEE 321 and ESM 341 with grade of C or better. Fundamental and special methods of analysis of statically indeterminate structures.

UEE 425. Reinforced Concrete Design I. (3) Prerequisites: UEE 321 and ESM 341. Analysis and design of reinforced concrete components with emphasis on fundamental theories. Mechanics and behavior of reinforced concrete. Flexural members to include singly and doubly reinforced beams of various cross sections (rectangular, T-beams, joists, one-way slabs and others.) Shear in beams and columns. Short columns to include uniaxial and biaxial bending. Construction of short column interaction diagrams. Introduction to footings. Current ACI Specifications used.

UEE 426. Reinforced Concrete Design II. (3) (3G) Prerequisite: UEE 425. Analysis and design of reinforced concrete components and systems with emphasis on the fundamental theories necessary for a thorough understanding of concrete structures. Concentrically loaded slender columns, slender columns under compression plus bending. Footings and retaining walls. Continuous beams and frames. Buildings and bridges. Precast and prestressed concrete. Emphasis to be placed on various topics partially dependent upon student interest and goals. Current ACI Specifications used.

UEE 451. Concrete and Steel Laboratory I. (2) Prerequisites or corequisites: UEE 421 and UEE 425. Design of concrete mixes; testing of standard concrete cylinders, beams and columns. Testings of steel tensile members and beams. Analysis and design of simple structural systems. One hour of lecture and three laboratory hours per week.

UEE 455. Concrete and Steel Laboratory. (1) Prerequisites or corequisites: UEE 421 and UEE 425. Design of concrete mixes; testing of standard concrete cylinders, beams and columns. Testings of steel tensile members and beams. Analysis and design of simple structural systems. Three laboratory hours per week.

UEE 522. Advanced Topics In Structural Steel. (3) (3G) Prerequisites: UEE 422 or consent of instructor. Theory of plastic-behavior steel structures; current topics in structural steel as they develop.

UEE 528. Matrix Methods of Structural Analysis. (3) (3G) Prerequisite: consent of instructor. Derivation of the basic equations governing linear structural systems. Application of stiffness and flexibility methods to trusses and frames. Solution techniques utilizing digital computer.

UEE 629. Structural Dynamics. (3G) Prerequisite: Consent of instructor. Analysis and design of structures subject to dynamic and static loading, single degree of freedom approach, vibration of structural components including damping and elasto-plastic behavior.

ENVIRONMENTAL AND WATER RESOURCES ENGINEERING

UEE 341. Environmental Engineering I. (3) Admission by consent of instructor. General overview of environmental problems. Theory of supply, transmission and distribution of water. Determination of wastewater volumes and design of wastewater collection systems. Storm water quality and water quality modeling.

UEE 351. Environmental Laboratory I. (2) Prerequisite or corequisite: UEE 341. Laboratory problems in environmental engineering. Emphasis on analysis and presentation of results as well as on the significance of results as they affect theory and/or practice. One hour of lecture and three laboratory hours per week.

UEE 355. Environmental Laboratory. (1) Prerequisite or corequisite: UEE 341. Laboratory problems in environmental engineering. Emphasis on analysis and presentation of results as well as on the significance of results as they affect theory and/or practice. Three laboratory hours per week.

UEE 442. Environmental Engineering II. (3) (3G) Prerequisite: UEE 341. A continuation of UEE 341. Theory and design of water and wastewater treatment processes, including physical, chemical, and biological treatment, and the processing of sludges. Advanced wastewater treatment processes. Computer modeling.

UEE 544. Engineering Hydrology. (3) (3G) Admission by consent of instructor. A quantitative study of the various components of the water cycle; including precipitation, runoff, ground water flow, evaporation and transpiration, stream flow. Hydrograph analysis; flood routing; frequency and duration; reservoir design; computer simulation model of a water shed.

UEE 546. Engineering Hydraulics. (3) (3G) Prerequisite: Consent of instructor. Problems of fluids as applied in civil engineering; open channel flow; dams and spillways; water power; river flow and backwater curves; pipe networks, fire flow, sewage collection, groundwater, computer applications including a hydraulic water model simulation.

UEE 641. Stream Pollution Analysis. (3G) Prerequisite: Consent of instructor. A study of stream pollution analysis including: sources of pollution and types of waste; waste assimilation capacity, self purification; biological, biochemical and hydrological considerations in stream analysis, estuarine analysis. Computer model simulation.

TRANSPORTATION AND GEOTECHNICAL ENGINEERING

UEE 261. Surveying. (3) Admission by consent of instructor. Elements of plane surveying including taping, transit, level, stadia, plane table, topographic surveying and mapping, care and adjustment of instruments; error adjustments; area and earthwork computations; introduction to photogrammetry; computer techniques. Periods of laboratory, lecture and field work will be scheduled.

UEE 352. Transportation Laboratory I. (2) Prerequisite: UEE 361. Design of transportation systems including highways, airports, pipelines and mass transit; route layout, geometric design and earthwork calculations; computer-aided system simulation and evaluation. One hour of lecture and three laboratory hours per week.

UEE 356. Transportation Laboratory. (1) Prerequisite: UEE 361. Design of transportation systems including highways, airports, pipelines and mass transit; route layout, geometric design and earthwork calculations; computer-aided system simulation and evaluation. Three laboratory hours per week.

UEE 361. Transportation Engineering I. (3) Admission by consent of instructor. Development of transportation facilities; planning, location and economic considerations, with special emphasis on land transportation.

UEE 452. Geotechnical Laboratory I. (2) Prerequisites or corequisites: ESM 341 and UEE 468. Demonstrations and experiments verifying theoretical bases of geotechnical engineering; cohesionless and cohesive soils. One hour of lecture and three laboratory hours per week.

UEE 456. Geotechnical Laboratory. (1) Prerequisites or corequisites: ESM 341 and UEE 468. Demonstrations and experiments verifying theoretical bases of geotechnical engineering; cohesionless and cohesive soils. Three laboratory hours per week.

UEE 462. Urban Transportation Engineering. (3) (3G) Prerequisite: UEE 361. Urban transportation considerations; travel characteristics of urban transportation systems; analysis of transportation-oriented studies; analytic methods of traffic generation, distribution and assignment; urban layout and growth patterns.

UEE 468. Geotechnical Engineering. (3) Prerequisite: ESM 341. Theoretical bases of geotechnical engineering to include shear, stress and strain in soils and failure of soils; foundations; permeability and pore pressure; retaining structures, slope stability and earth dams; soil-structure interaction; soil dynamics; liquefaction; earthquake effects.

UEE 561. Urban Traffic Engineering. (3) (3G) Prerequisite: UEE 361 or consent of instructor. Analysis of basic characteristics of drivers, vehicles and roadway that affect the performance of road systems. Stream flow elements, volume, density, speed. Techniques of traffic engineering measurements, investigations and data analysis, capacity analysis. Intersections, accidents, parking.

UEE 565. Urban Systems Engineering. (3) (3G) Prerequisite: UEE 472 or consent of instructor. Survey of economic, political, sociological and technological factors affecting modern growth; a planning process and its role in solving selected urban problems with emphasis on engineering contributions.

UEE 661. Urban Traffic Control and Operation. (3G) Prerequisite: UEE 561 or consent of instructor. Traffic control theory and application; traffic regulation, laws and ordinances; speed control, intersection control, flow control and parking control; design and application of control devices, investigation, evaluation techniques; statistical analysis; administration.

URBAN ENGINEERING, DESIGN ENGINEERING AND SPECIAL TOPICS

UEE 102. Computer Applications. (2) Introduction to computer programming through the study of FORTRAN IV, including the use of subprograms. Civil engineering applications will be stressed.

UEE 201. Engineering Drawing. (2) An introduction to engineering drawing. Topics include isometric, oblique and perspective drawings; orthographic projection; section views and building construction documents. One hour of lecture and three laboratory hours per week.

UEE 252. Measurements Laboratory. (2) Prerequisite: UEE 102 and ENG 101. An introduction to laboratory and field data collection techniques. Instruction in data analysis, data presentation and report writing. Elements of plane surveying. One hour of lecture and three laboratory hours per week.

UEE 412. Computer Applications in Urban and Environmental Engineering. (3) Senior standing in engineering. The application of the digital computer to various types of urban and environmental engineering problems. Examinations in depth of selected urban and environmental engineering problems.

UEE 432. Urban Engineering. (3) Admission by consent of instructor. An examination of those societal problems of metropolitan regions most amenable to engineering solutions. Current urban literature will be reviewed in seminar, and selected topics amenable to engineering analysis will be studied. Written reports will be presented.

UEE 471. UEE Systems and Design I. (3) Prerequisite: Senior standing. Introduction to systems engineering techniques as applied to urban and environmental engineering problems. The application of analytical methods to the development and evaluation of public systems. Course stresses methodological considerations and engineering projects which are carried out by small groups of students.

UEE 472. UEE Systems and Design II. (3) Prerequisite: UEE 471. Continuation of UEE 471 systems techniques. Utilization of students' previous course work and principles of UEE 471 to creatively investigate and produce alternative solutions for a comprehensive engineering project. Efforts will result in written and verbal class presentations.

UEE 481. Professional Development. (1) Prerequisite: Senior standing in UEE. A series of one-hour lectures by faculty and invited speakers. Instruction in the basic concepts of professionalism and the nature and purpose of engineering ethics. Offered on a Pass/Fail basis.

UEE 490. Special Topics in UEE. (Variable credit 1-4 hours. May be repeated for credit.) This course will be devoted to specific new areas which are emerging in the various fields of urban and environmental engineering. The course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics and physical science stems of the core curriculum.

UEE 491. Undergraduate Research in UEE. (Variable credit 1-4 hours. May be repeated for credit.) Prerequisite: Consent of Department. This course involves the independent study of a theoretical and/or experimental problem in a specialized area of UEE. The student can pursue some particular area or problem to a depth much greater than can be undertaken within the scope of existing courses. The topics of the investigation may originate from the student or from the faculty member who will supervise the study.

UEE 492. Individualized Study. (Variable credit 1-3 hours. May be repeated for credit.) Prerequisite: Consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses.

UEE 671. Air Quality Control. (3G) Prerequisite: Consent of instructor. Study of various types of air pollutants, their sources, nature and effects. Examination of air quality criteria, standards and monitoring. Analysis of feasibility, applicability and efficiency of diverse systems of control. Evaluation of goal and research needs in the future.

UEE 681. Traffic Flow Theory. (3G) Prerequisite: UEE 561 or consent of instructor. Logical foundations and mathematical representation of traffic flow; interrelation betwen microscopic and macroscopic equations of motion for highway traffic; stochastic properties of traffic at low and moderate densities. Car following theories of traffic flow at high densities. Applications of queueing theory to transportation.

UEE 682. Transportation Systems Analysis. (3G) Prerequisite: UEE 561 or consent of instructor. Issues, concepts and methods of transportation systems engineering and planning. Decision making in transportation management. The application of analytical methods to the development and evaluation of transport systems.

College of Human Development and Learning

Dean: Professor Heller
Assistant to the Dean: Associate Professor Pleasants

The College of Human Development and Learning is composed of the Departments of Educational Leadership and Instruction, Health and Physical Education, and Human Services and the Areas of Air Force Aerospace Studies and Army Military Science. The bachelor of arts degree is offered in the Department of Educational Leadership and Instruction and the Department of Human Services and the master of human development and learning degree is offered by the College. In addition, the certificate of advanced study (Sixth Year) program is offered by the College in specified certification areas.

The bachelor of arts degree in Human Development and Learning is designed for the preparation of early childhood and intermediate teachers within the Department of Educational Leadership and Instruction. Within the Department of Human Services, the bachelor of arts degree in human development and learning is designed for the preparation of infant and child development specialists, program directors, infant and day care coordinators, human services specialists and other related personnel for a variety of human service professions. In addition, the Department of Educational Leadership and Instruction offers a professional sequence leading to teacher certification for those individuals who may elect to major in an academic area and plan to teach at the intermediate or secondary levels.

The master of human development and learning degree is designed from the point of view of sound graduate professional study and professional certification, around a body of knowledge and experiences common to several types of professional needs and interests. Graduates of this program will be able to employ expertise in a variety of ways: as teachers in the areas of early childhood, intermediate, secondary, special education, reading education and health education; school administration and supervision; curriculum and instruction; school and agency counseling; and as students in programs for advanced study of doctoral programs. Courses are also available which are appropriate for teacher certification renewal, additional graduate certification fields or special needs for individual professional growth.

To prepare teachers beyond the master's level, the College offers certificate of advanced study programs in the following five areas: counseling and guidance; elementary education (early childhood and intermediate); school administration; secondary education (English, mathematics and history); and curriculum and instruction specialists (supervision). These programs are planned to meet the guidelines of the North Carolina State Board of Education and upon successful completion of a program, the participant will be granted a Level II Graduate Certificate in the respective field.

The aerospace studies and military science programs are organized in accordance with both the regulations of their respective military branches and the rules and regulations of the University. Successful completion of either program will qualify the student to serve as a commissioned officer in the respective branch of service. All students in these programs pursue majors in one or more of the degree programs offered by the University.

In addition, the College has the capacity to offer minimum work in the field of library science. The courses listed in the *Catalog* are not offered routinely and will be offered only when there is a documented need and demand for a course and/or courses.

SERVICES AND SPECIALIZED RESOURCES

Graduates Seeking Certification. Special students who have already completed a baccalaureate degree may be admitted to the University for teacher certification purposes. Specific courses and activities necessary for certification will be determined upon an evaluation of the person's credentials by a designated person in the College who will take into account the student's prior preparation and the guidelines of the Unviersity's approved program in teacher education. The designated person in the College will plan a program with the student and file a copy of the approved plan with the State Department of Public Instruction.

Teacher Placement. The Placement Office in the Division of Student Affairs, in cooperation with the College of Human Development and Learning, provides placement services for qualified graduates. All students in the human development and learning program are urged to complete their credentials since most school systems request candidates who are applying for positions to submit them. In addition, school administrators may contact the University for prospective candidates who are registered with the Placement Office.

Curriculum and Textbook Holdings. The University library maintains a selected number of current textbooks and related publications representative of all subject areas and grade levels taught in the public schools. It subscribes to approximately 500 education and related periodicals and maintains a vertical file containing non-catalogued education materials. The library is a government document depository; thus, federal government publications pertaining to education are available.

Learning Resources Center. The University's Learning Resources Center provides all students with laboratory experiences in teaching learning resources. The latest audiovisual equipment and teaching media are available for individual student use. Instruction is provided in the use, preparation and evaluation of teaching media as a functional aspect of teaching.

Curriculum Materials and Instructional Communications Laboratory. A Curriculum Materials and Instructional Communications Laboratory is located in the College of Human Development and Learning and is available for use by faculty, students and other professionals in the field. The latest curriculum, media and instructional materials are available to supplement the total instructional program of the College.

NORTH CAROLINA TEACHER CERTIFICATION

Undergraduate. North Carolina currently provides for three types of teachers certification based upon the completion of approved baccalaureate degree programs: early childhood (kindergarten through third grade), intermediate (grades four through nine) and secondary (grades seven through 12) certification. At UNCC, students electing early childhood certification major in Human Development and Learning; those who elect secondary certification major in academic disciplines within the College of Arts and Sciences; and those seeking intermediate certification generally major in Human Development and Learning but may major in an academic discipline as a specific teaching field. North Carolina also provides special subjects certification (kindergarten through grade 12) in certain teaching fields such as art and dance. At UNCC, students electing art certification or dance certification major in creative arts.

Graduate. North Carolina currently provides for graduate level certification based upon the completion of approved master's degree programs. The graduate certification may be of the same type or field received at the completion of a baccalaureate degree program or it may be in a special service personnel area such as administration, supervision, counseling and guidance, reading and special education. At UNCC, students electing graduate certification in early childhood education, intermediate education and the special service personnel areas major in human development and learning within the master of human development and learning degree programs; those who elect secondary graduate certification generally major in human development and learning but may elect to major in a graduate program in another college which has a suitable program for the discipline in which graduate certification is sought.

Advanced Graduate. North Carolina currently provides for certificate of advanced study certification based upon the completion of approved programs of study beyond the master's degree. The certificate of advanced study certificate may be in a teaching field or one of the special service personnel areas. At UNCC, students electing the certificate of advanced study programs are admitted and enrolled in the College of Human Development and Learning. Formal coordination is maintained with other appropriate departments and colleges which provide course work needed in many of the certificate of advanced study programs.

COURSE PREFIXES BY DEPARTMENT/COLLEGE

College of Human Development and Learning

HDL	Human Development and Learning
LS	Library Science

Department of Educational Leadership and Instruction

ADS	Administration and Supervision
CAI	Curriculum and Instruction
ELE	Elementary Education
RDG	Reading
SEC	Secondary Education
SED	Special Education
TED	Teacher Education

Department of Health and Physical Education

HED	Health Education
PED	Physical Education

Department of Human Services

CFD	Child and Family Development
CLG	Counseling and Guidance
HSV	Human Services

Area of Air Force Aerospace Studies

AS	Air Force Aerospace Studies

Area of Army Military Science

MS	Military Science

COURSE DESCRIPTIONS

HUMAN DEVELOPMENT AND LEARNING

Courses for Undergraduates

HDL 250. Processes of Growing I: Exploration of Human Potential. (3) An introduction to the study of human development and learning designed to allow the individual to look closely at one's self and one's relationship to others.

HDL 260. Foundation of the Education Professions. (3) The course is a comprehensive introduction to the educating professions.

HDL 270. Communication Skills and Processes. (3) Understanding of the communication processes: reading, writing, listening and speaking. Analysis of communication prob-

lems and field-based investigations are utilized to develop an understanding of communication theory.

HDL 280. Adolescence, Adulthood and Aging. (3) Interdisciplinary study of transitional periods leading to adolescence, from adolescence to adulthood and the aging process with emphasis on historical, biological and cultural inheritance.

HDL 400. Seminars on the Person: Problem-Process.

A. Communication Skill and Processes. (2)
B. Cultural and Scientific Impact. (2)
C. Living/Learning Styles. (2)
D. Living/Learning Environments. (2)
E. Developmental Exceptionality. (2)

HDL 420. Seminars on the Person: Cycles of Growth.

A. Early and Middle Years. (2)
B. Adolescence and Aging. (2)
C. The Infant and Early Years. (2)
D. The Middle Years. (2)
E. The Adolescent. (2)
F. The Young Adult. (2)
G. The Adult Years. (2)

HDL 470. Processes of Growing: Internship, Integration and Synthesis.

A. Processes of Growing VI — Internship (9)
B. Processes of Growing VII — Internship (9)
C. Processes of Growing VIII — Integration and Synthesis (2)

HDL 472. Individual Study in HDL. (1-6) Prerequisite: Permission of the student's adviser and an appropriate individual study director. Designed to allow a student to pursue individual goals under the supervision of an appropriate faculty member. May be repeated for credit.

Courses for Advanced Undergraduate and Graduate Students

HDL 570. Selected Topics in Human Development and Learning. (3-6) (3-6G) Prerequisite: HDL 250 and permission of the College of Human Development and Learning. Seminars, independent study and clinical experiences. May be repeated for credit, with approval.

Courses for Graduate Students Only

HDL 600. Theories of Human Development and Learning. (3G) Introduction to the philosophical concepts of the nature of man and human potential.

HDL 601. Research in Human Development and Learning I. (3G) Fundamental concepts of empirical, logical and conceptual research problems in human development. Competencies stressed include: library research procedures, interpreting research reports, developing literature reviews, designing proposals for research and developing professional writing skills.

HDL 602. The Person and School in Urban Society. (3G) Study of the basic philosophical theories and socio-cultural forces that influence the objectives, structure and programs of schools, agencies and institutions in urban society.

HDL 604. The Facilitation of Meaning. (3G) Philosophical study of the comparative concepts of meaning with particular attention to their impact on solutions offered to learning, methods, organization and curriculum of schools, agencies and institutions in American society.

HDL 606. Adjustment Problems, Children and Youth. (3G) Study of adjustment problems of childhood and adolescence with emphasis on theoretical postulates as they relate to problems of behavior and attitudes in educational environments.

HDL 608. Learning and Development. (3G) In-depth study of selected theories of learning and development.

HDL 609. Interest, Aptitude, Intelligence. (3G) Study of the social, psychological and philosophical concepts of interest, aptitude and intelligence as they contribute to the understanding of individual differences and needs. Opportunities are provided for students in the assessment of human behavior through the administration and evaluation of current assessment devices and tests.

HDL 610. The Design and Analysis of Research in Human Development and Learning II. (3G) Fundamentals of research design and strategy for analyzing data gathered from educational research; descriptive and inferential statistics for data analysis and introduction to SPSS computer packages.

HDL 621H. Strategies and Designs in Human Development and Learning: Parent Education. (3G) Study of the principles and practices for research, development of programs and evaluation in parent education.

HDL 621I. Strategies and Designs in Human Development and Learning: Child Advocacy. (3G) Study of principles and practices for educational personnel to employ as child advocates.

HDL 622. Creativity, Learning Environments and Experiences. (3G) Investigation of theories of creativity and their relationship to curriculum development.

HDL 625F. Concepts of Teaching and Learning: Children's Play. (3G) Examination of theories, trends and current practices in children's play.

HDL 625G. Concepts of Teaching and Learning: Children's Writing. (3G) Examination of research, theories, trends and current practices in the written expression of children.

HDL 651. Seminar in Piagetian Theory and Research. (3G) Prerequisite: Permission of the instructor. Advanced seminar for investigation of Piagetian Theory with emphasis on genetic epistemology, research and neo-Piagetian concepts.

HDL 665A. Analyzing and Developing Approaches to the Helping Relationships: Person to Person Relationships. (3G) Examination of concepts and methods for improving individualized instructional approaches.

HDL 671A. Seminar and Internship in Human Development and Learning: Teaching. (3-6G) Prerequisite: Departmental permission. Supervised experiences in public and/or private school teaching with emphasis on developing skills as an education professional. Offered only on a *Pass/No Credit* basis.

HDL 671I. Seminar and Internship in Human Development and Learning: Inter-Professional. (3-6G) Prerequisite: Departmental permission. Supervised experiences in public and/or private school settings. Seminars are held concurrently with the internship. Offered only on a *Pass/No Credit* basis.

HDL 672. Individual Study in Human Development and Learning. (1-6G) Prerequisite: Permission of the College of Human Development and Learning. Designed to permit students to conduct research on selected topics, examine specific educational/human services literature and the development of special projects under the direction of a faculty member. May be repeated for credit with departmental approval. Offered only on a *Pass/No Credit* basis.

HDL 673. Seminar (1-3G) Prerequisite: Permission of the College of Human Development and Learning. Examination of selected areas of interest in the education/human services professions. May be repeated for credit with departmental approval.

HDL 699. Project/Thesis/Comprehensive Registration (0G) Prerequisite: Permission of graduate adviser. Registration is required of all candidates for the master's degree in the College of Human Development and Learning. The student must register for HDL 699 during the term in which the student expects to present and defend the project/thesis or expects to sit for the comprehensive examination. Offered only on a *Pass/No Credit/In Progress* basis.

Courses for Advanced Graduate Students.

HDL 721. Research in Human Development and Learning III. (3G) Prerequisite: HDL 601 and 610 or equivalents. Students develop research proposals for problems in a special area of their interest using an appropriate design based upon criteria well-founded in critical reviews of research literature.

HDL 722. Research in Human Development and Learning IV. (3G) Prerequisites: HLD 601 and 610 or equivalents. Advanced techniques in research design and applied statistics appropriate to descriptive, correlational and experimental research including multiple regression, factor analysis, Guttman scaling, intermediate nonparametric statistics for data analysis and the use of the computer for data processing.

HDL 725. Educational Policy Studies: Trends, Issues and Problems. (3G) Development of abilities to examine and to explain educational trends, issues, problems, proposals, policies, arrangements and practices within historical, social, economic, political and philosophical contexts.

HDL 726. Comparative Education. (3G) Analysis of sociocultural forces affecting educational planning and comparison of contemporary educational systems of selected countries and the United States.

HDL 735. Readings in Learning and Development. (3G) Examination of research data about the development of human behavior interpreted in terms of multiple disciplines, including psychology, anthropology and ethnology.

LIBRARY SCIENCE*

LS 520. Organization and Administration of the School Media Center. (3) (3G) Acquisition, processing, circulation of materials; student assistant; records and reports; attendance and scheduling; library quarters and equipment, professional relationships, evaluation of library sciences.

LS 522. Basic Reference Sources and Materials. (3) (3G) Selection, evaluation and use of basic reference materials.

LS 524. Reading Guidance and the Selection of Books and Materials for Children. (3) (3G) Survey of the development of children's literature, with study of aids and criteria for selection of books and other materials; principles and objectives of reading guidance for the kindergarten and elementary school pupil.

LS 526. Reading Guidance and the Selection of Books and Related Material for Young People. (3) (3G) Survey of library materials and principles and objectives of reading guidance, appropriate for the junior high and high school student, with study of aids and criteria for their selection.

LS 528. Non-Book Materials. (3) (3G) Study of the principles and techniques for the selection, acquisition, organization, circulation and use of non-book materials in the library program.

*Library Science courses are offered only when there is a documented need and demand.

Department of Educational Leadership and Instruction

Acting Chairperson: Associate Professor Huffman
Professors: Hackney, Heller, Smith, Sud, Britt, Fretwell
Associate Professors: Antonelli, Davis, Hoyle, Huffman, Pleasants, Riley, Roberts
Assistant Professors: Armstrong, Clark, Edwards, Green, Gretes, Lyons, Montgomery, Rose, Sadoff, Schaffer, Sherry, Whaley
Assistant Professor Emeritus: Rollins
Visiting Assistant Professors: Blocker, Spooner
Lecturers: Carter, Harold, Sapp

The Department offers programs leading to the bachelor of arts and the master of human development and learning degrees with undergraduate and graduate teaching certification. In addition, the Department offers course work leading to teaching certification at the intermediate and secondary levels for students in the College of Arts and Sciences. The certificate of advanced study (sixth year) is offered in four areas.

THE BACHELOR OF ARTS DEGREE

The Department offers B.A. programs for students intending to become teachers at the early childhood (kindergarten through third grade), intermediate (fourth through ninth grade) or secondary (seventh through twelfth grade) levels.

General Studies. The University requires that all undergraduate students receive an education that includes knowledge and understanding in several fields of study. Therefore, all students seeking the B.A. in the Department of Educational Leadership and Instruction are expected to fulfill the following requirements:

English	6 semester hours
Natural Science	7-8 semester hours
Social Science	12 semester hours
Creative Arts and Humanities	6 semester hours
Health and Physical Education	6 semester hours
Logic and Mathematics	6 semester hours

Students seeking North Carolina teaching certification are subject to additional general studies requirements and should discuss with their advisers courses that may satisfy both University General Studies and Certification requirements.

The Helping Specialty. Each student is required to identify a Helping Specialty — a block of 18-24 semester hours of focused study in one of the following areas:

1. **Early Childhood Education.** Students in the early childhood program will select a helping specialty from the following:

   a. *Creative Arts.* A program of studies designed to allow the student to explore facets of the arts in relations to interests and talents. Seminar, workshop and project offerings shall be selected in consultation with a principal professor in creative arts. A concentration in creative arts shall require a minimum of one to two full semesters of study or the equivalent.

   b. *Cultural Studies.* A program of studies designed to allow the student to pursue in-depth history, literature, music and geography in relation to political and cultural heritage and structures.

   c. *Human Sciences.* A program of studies equivalent to a minimum of 18-24 semester

hours designed to develop skill in and appreciation of scientific inquiry, the understanding of basic life processes and the chemical and physical constitution of living matter.

d. *Language Development and Communications.* An integrated program of studies designed to develop an understanding of concepts of speech, dialects, patterns of language development and forms of communication (verbal and non-verbal) in relation to the processes of socialization, historical and literary style, and structure.

e. *Movement Education.* An area of study designed to allow the student to develop an understanding and appreciation of movement as a medium for improving and maintaining functional health and as an approach for releasing human potential.

f. *Psychological Studies.* A program of studies designed to allow the student to pursue in depth various areas of exceptionality, emotional disturbances, psychological development and testing.

g. *A Specific Discipline or Other Thematic Idea.* The student may select an area of study of major interest from one discipline or department such as English, history, mathematics or other approved programs.

h. *Sports Helping Specialty.* The sports helping specialty is designed primarily to meet the needs of the non-physical education major who wishes to coach.

2. **Intermediate Education.** For the student in the intermediate education program, the helping specialty must be selected from language arts, social studies, science, mathematics or a foreign language. Students should consult with their advisers in designing their helping specialty.

3. **Secondary Education.** For the student in the secondary education program, the helping specialty must be a teaching area. Students should consult with their advisers on designing their helping specialty.

Admission to Professional Education Sequence. Admission to the professional education program will be contingent upon the student having met the following criteria:

(1) Completion of 30 semester hours of general degree requirements;

(2) Overall GPA above 2.00;

(3) Completion of HDL 260 or equivalent; and

(4) Submission of recommendations from his or her HDL adviser and any academic advisers (secondary and non-HDL intermediate).

Retention in Professional Education Sequence. Retention in the teacher education program will be contingent upon the student's maintenance of the following criteria:

(1) A GPA of 2.5 or better in professional education courses and a GPA of 2.5 in his or her subject matter specialty;

(2) A grade of *C* or better in all professional education courses and in his or her subject matter specialty; and

(3) An overall GPA above 2.0

The Professional Education Sequences.

Early Childhood Education. This program is designed for students who intend to become teachers at the kindergarten through third grade levels and to be certified through the State Department of Public Instruction. In addition to the general studies requirements, a helping specialty and electives, each student will complete the following 39-hour professional preparation sequence: Part I — *Foundations* (nine hrs.), HDL 250, HDL 260, HDL 270; Part II —

Professional Skills (nine hrs.), TED 340, RDG 351, SED 360; Part III — *Professional Content* (nine hrs.), CFD 415, TED 440, ELE 485; Part IV — *Student Teaching* (12 hrs.), ELE 486 and ELE 488.

Intermediate Education. This program is designed for students who intend to become teachers at the fourth through ninth grade levels and to be certified by the State Department of Public Instruction in language arts, social studies, science, mathematics or a foreign language. In addition to the general studies requirements, 18-24 hours of approved course work in a teaching field and electives, each student will complete the following 39-hour professional preparation sequence: Part I — *Foundations* (nine hrs.), HDL 250, HDL 260, HDL 270; Part II — *Professional Skills* (nine hrs.), TED 340, RDG 351 or RDG 525, SED 360; Part III — *Professional Content* (nine hrs.), CFD 415, TED 440, ELE 485; Part IV — *Student Teaching* (12 hrs.), ELE 487 and ELE 488.

Note: Non-HDL majors may also receive intermediate teaching certification by completing the above sequence, certain other general studies requirements and approved course work in a teaching field.

Secondary Education. This program is designed for students in the College of Arts and Sciences who intend to become teachers at the seventh through twelfth grade levels and be certified by the State Department of Public Instruction in their academic field. In addition to the general studies requirements, 24-30 hours of approved course work in a teaching field and electives, each student will complete the following professional preparation sequence: Part I — *Foundations* (three hrs.), HDL 260 (should be taken early in the student's program and prior to any other professional requirement); Part II — *Professional Skills* (nine hrs.), the following courses may be taken at any time in the student's program after HDL 260, but should be completed prior to the internship semester — HDL 280, SED 360, HED 201 or PED 310; Part III — *Professional Skills — Advanced* (nine hrs.), the following courses should be taken the semester immediately *preceding* the internship semester — RDG 525, TED 340; TED 440; Part IV — *Internship Semester* (12 hrs.), SEC 490 and SEC 491.

Admission to Student Teaching.

HDL Majors (Early Childhood and Intermediate).

To be admitted to student teaching the HDL major must:

(1) Be recommended by the student's adviser;

(2) Have completed prerequisite courses in HDL with a GPA of 2.5 or above;

(3) Present an overall grade point average of above 2.0;

(4) Present a GPA of 2.5 or above in helping specialty.

Non-HDL Majors

To be admitted to student teaching the non-HDL major must:

(1) Be recommended by the department of the major;

(2) Present a grade point average of 2.5 or above in area of the major;

(3) Have completed prerequisite courses in human development and learning with a GPA of 2.5 or above;

(4) Present an overall grade point average of above 2.0.

Exit Evaluation. Prior to being recommended for certification the student will be required to have met the following criteria:

(1) Completion of University degree requirements with a GPA above 2.0;

(2) Completion of all professional education courses and subject matter specialty with a GPA of 2.5 or better; and have earned grades of *C* or better in all professional education courses;

(3) Completion of a competency based evaluation of his or her student teaching performance;

(4) Meet the minimum state score required on the National Teacher Examination;

(5) Be recommended by the program faculty of major area of emphasis;

(6) Be recommended by the HDL faculty adviser and the University supervisor of student teaching.

The Master of Human Development and Learning Degree

The Department offers MHDL programs for students desiring graduate teaching certification in early childhood education, intermediate education, secondary education, special education, administration, curriculum and instruction (supervision), and reading education.

Requirements for the Degree. The candidate for the degree of master of human development and learning must successfully complete a minimum of 36 semester hours of work in courses approved for graduate credit including at least 18 hours in courses which are open to graduate students only.

In addition, all students must successfully complete either a written comprehensive exam or a master's project as a requirement for graduation. While these would be completed at or near the end of the student's program of study, the student should consult with the adviser within the first 12 hours of course work concerning procedures and preparation for either option.

Programs.

MHDL In Early Childhood Education. This program is designed for students seeking graduate teaching certification at the kindergarten through third grade levels. The requirements are as follows: *Core Courses* (nine hrs.): HDL 600, HDL 601, CAI 620; *Professional Specialization* (12 hrs.): HDL 608, RDG 625 B or RDG 630, ELE 671 A, ELE 621 B; *Cognate Field Electives* (six hrs.) and *Teaching Field Electives* (nine hrs.).

MHDL in Intermediate Education. This program is designed for students seeking graduate teaching certification at the fourth through ninth grade levels. The requirements are as follows: *Core Courses* (nine hrs.): HDL 600, HDL 601, CAI 620, *Professional Specialization* (nine hrs.): RDG 625 B, or RDG 630, or RDG 525, ELE 671 A and ELE 621 B. *Cognate Area of Specialization and Certification* (12 hrs.): The cognate fields of study are limited to those subjects taught in intermediate (4-9) schools. The student must have a total of 12 hours from one of the following areas: language arts, social studies, science, math, art, music, PE or health. The specialization may also be in one field such as history or biology. One area of certification requires 12 hours; two areas of certification require 18 hours, nine hours in each area. *Teaching Field Electives* (six hrs.).

MHDL in Secondary Education. This program is designed for students seeking graduate certification at the seventh through twelfth grade levels. The requirements are as follows: *Core* (12 hrs.): HDL 600, HDL 601, CAI 620, SEC 671 A; *HDL electives* (six hrs.), and *Cognate electives from certification field* (18 hrs.).

MHDL in Reading Education. This program is designed to train both reading specialists and regular classroom teachers seeking additional expertise in reading at the elementary and secondary levels. Program graduates will be eligible for the "G" certificate in Reading, K-12. Course requirements include Part I: *Foundations* (nine hrs.) HDL 600, HDL 601, RDG 625 B. Part II; *Curriculum* (six hrs.) CAI 620, RDG 525 or RDG 630; Part III: *Specialization* (15 hrs.), RDG 626 B, RDG 636, RDG 671 G, ENG 603 and HDL 609 or PSY 504. *Electives* (six hrs.).

MHDL in Administration. This program is designed for students seeking Level I Administration Certification (the "Principal's Certificate"). The *required courses* are as follows: HDL 600, HDL 601, CAI 620, ADS 660, ADS 661, ADS 665D, ADS 665E and ADS 671C. The following are

restricted electives from which students must select two courses: HDL 570 L, HDL 602, HDL 604, HDL 610, HDL 621, HDL 635, HDL 665A, CLG 665 B, and HDL 671 I. Two courses also must be selected from a *cognate area* of study such as management, political science or sociology.

MHDL in Curriculum and Instruction, (Supervision) The master's degree in human development and learning in curriculum and instruction, qualifying one for the supervisor's certificate (level I certification) has two tracks — generalist or specialist. Students pursuing the generalist track complete 21 semester hours of required courses. The remaining 15 hours are taken from restricted electives within the College of Human Development and Learning. These courses should be selected from administration and supervision, curriculum and instruction, and other appropriate program areas. Students pursuing the specialist track complete 21 semester hours of required courses. The remaining semester hours are taken from the department in the College of Arts and Sciences chosen by the student for his/her specialty area. Normally 15-18 semester hours are required.

For the generalist and specialist tracks, the following courses are required: HDL 600, HDL 601, CAI 620, CAI 621, HDL 625 or ADS 673 E, ADS 665 D and ADS 671 D. Students pursuing the generalist track take 15 semester hours from the following restricted electives: HDL 570 L, 608, 609, 625, 626, 635, 665 A, 671 I, ADS 660, ADS 665 E and CLG 665B. Students pursuing the specialist track complete 15-18 semester hours in a special subject area such as English, History, Mathematics, etc.

MHDL in Special Education. This program is designed for students seeking graduate certification in special education (mental handicaps, learning disabilities, emotional handicaps, gifted and talented, cross-categorical). The requirements are as follows: HDL 600, HDL 601, CAI 620, HDL 609, SED 603, SED 621, SED 625, SED 626, SED 671 and Electives (six hrs.).

Approval of Individual Programs. Approval of each student's program will be the responsibility of an adviser. The student will also need a graduate committee for consultation and evaluation. The committee shall consist of the adviser and at least two other faculty members representing the major areas of concentration which are significant to the student's program.

Comprehensive Examination. Each student will complete either an extensive master's project or a written comprehensive examination. The project is designed, carried out and evaluated under the direction of the student's graduate committee and may take the form of a thesis, a research study or a program development activity. The written comprehensive examination is prepared and evaluated by the student's graduate committee and is intended to determine the extent of the student's assimilation of his/her total program. Both the project and the written examination are followed by an oral examination, wherein the student clarifies, expands upon and/or defends the written project report or examination.

Certificate of Advanced Study (Sixth Year) Programs

The Department offers certificate of advanced study (CAS) programs in curriculum and instruction (supervision), administration, elementary education (early childhood and intermediate), and secondary education (history, English and Mathematics). A program in special education is also available.

General Requirements. The CAS programs involve a minimum of 36 semester hours of course work including a supervised internship. At least half of each student's program must consist of advanced graduate courses. Students must also successfully complete a comprehensive review.

Programs.

Certificate of Advanced Study in Curriculum and Instruction (Supervision). This program is designed for students in or seeking leadership positions as supervisors in public or private schools. The requirements of the program are as follows: HDL 610, ADS 665E, HDL 725, ADS 795, ADS 796, ADS 797 and ADS 772. The remaining 15 semester hours must come from

restricted electives in the College of Human Development and Learning and from cognate areas of study such as political science, sociology, psychology, etc.

Certificate of Advanced Study in Educational Administration. This program is designed for students in or seeking leadership positions in public or private school administration. The requirements for the program are as follows: HDL 610, HDL 725, ADS 790, ADS 791, ADS 792 and ADS 771. The following are restricted electives from which the student must select two courses: ADS 793, ADS 794, ADS 796 and ADS 797. Two courses also must be selected from a cognate area of study such as management, political science or sociology.

Certificate of Advanced Study in Elementary Education. This program is designed for students seeking advanced graduate skills in the areas of early childhood and intermediate education. The requirements for the program are as follows: HDL 610, HDL 725, HDL 735 and HDL 742. The student must select one course from the following (three hrs.): PSY 504, PSY 514, HDL 609 and HDL 721. Also, the student is to select one course from the following (three hrs.): HDL 733, ELE 625A, RDG 625B, CAI 625C and CAI 675D. The student must select six semester hours from teaching field electives. Twelve semester hours must be selected from cognate area of study or electives outside the College of Human Development and Learning.

Certificate of Advanced Study in Secondary Education. This program is designed for students who are seeking advanced skills in the area of secondary education, concentrating in English, mathematics, or history. The requirements for the program are as follows: HDL 610, HDL 725, SEC 753, SEC 771 or SEC 772, and SEC 750 or SEC 751. Students may choose three hours from the following to complete their professional education sequence (18 hrs.): SEC 603, RDG 625B, RDG 630, HDL 735 and SEC 752. Eighteen semester hours must be selected from a cognate area of study.

COURSE DESCRIPTIONS

ADMINISTRATION (ADS)

Courses for Graduate Students Only

ADS 621C. Strategies and Designs in Human Development and Learning: Administration. (3G) Examination of principles and practices for educational administrators including program design, implementation and evaluation.

ADS 621D. Strategies and Designs in Human Development and Learning: Supervision. (3G) Examination of principles and practices for curriculum and instruction specialists including program design, implementation and evaluation for educational coordinators/ supervisors.

ADS 660. Behavioral Anaylsis of Administration. (3G) Examination of behavioral components of administrative theory, organization, decision-making and planning for educational development including appraisal of significant functions, techniques, practices and problems as they relate to public school systems, social institutions, and the system of social and governmental agencies.

ADS 661. The Principalship. (3G) Examination of school administration focusing on the role, task and responsibilities associated with the principalship with special attention to the conceptual, human and technical skills associated with the principalship.

ADS 665D. Analyzing and Developing Approaches to the Helping Relationships: Supervision. (3G) Designed to acquaint the prospective supervisor or adminstrator with the fundamentals in the areas of clinical supervision, in-service education and leadership in curriculum development.

ADS 665E. Analyzing and Developing Approaches to the Helping Relationships: Leadership. (3G) Examination of leadership in formal organizations with special emphasis on

educational organizations and the role of the leader in the accomplishment of organizational goals with consideration of social and behavioral science research concerning leadership ability.

ADS 671C. Seminar and Internship in Human Development and Learning: Administration, (3-6G) Prerequisite: Department approval. Internship under the supervision of University and on-site personnel in a setting consistent with the student's professional goals in which the student will be involved in the diverse activities expected of the professional administrator. Seminars are held concurrently. Offered only on a *Pass/No Credit* basis.

ADS 671D. Seminar and Internship in Human Development and Learning: Supervision. (3-6G) Prerequisite: Departmental approval. Internship under the supervision of University and on-site personnel in a setting consistent with the student's professional goals in which the student will be involved in the diverse activities expected of the curriculum-instructional specialist. Seminars are held concurrently. Offered only on a *Pass/No Credit* basis.

ADS 671E. Seminar and Internship in Human Development and Learning: Leadership. (3-6G) Prerequisite: Departmental approval. Internship under the supervision of University and on-site personnel in a setting consistent with the student's professional goals in which the student will be involved in the diverse activities expected of leaders in educational/human service agencies. Seminars are held concurrently. Offered only on a *Pass/No Credit* basis.

Courses for Advanced Graduate Students Only

ADS 733. Practicum in Staff Development. (3G) Examination techniques of delivering in-service training and development of leadership for in-service educational programs including design and implementation of a staff development program in a school setting.

ADS 771. Culminating Experience. (3-6G) Demonstration of appropriate leadership abilities in a field setting including in internship at the school system level equivalent to full-time employment for a minimum of one semester and an action (field-based) project. Required for school administrators. May be repeated for credit.

ADS 772. Culminating Experience. (3G) Demonstration of appropriate leadership skills in a field setting. Required for curriculum and instruction specialists. May be repeated for credit.

ADS 790. Public School Administration. (3G) Examination of theory and practice of public school administration including the roles of school boards, superintendents, central office administrators and other members of the leadership team at the district-wide level with emphasis on the role of the superintendent.

ADS 791. School Law. (3G) Examination of the legal aspects of school administration with special attention to case law and statutory provisions relevant to educational administration and examination of some court decisions that have influenced policies and practices in the schools.

ADS 792. School Finance and Business Administration. (3G) Examination of the theory and operation of school finance systems and school business administration with special attention to local, state and federal sources of school revenue and such business functions as purchasing, budgeting, accounting and financing capital outlay projects.

ADS 793. School Personnel Administration. (3G) Examination of personnel administration in educational institutions with special attention to those functions and responsibilities related to the administration of personnel at the school district level including the contribution of the personnel function to the overall management and operation of a school system.

ADS 794. Planning School Facilities. (3G) Examination of practices, principles and procedures related to educational facility planning including an overview of the major steps involved in planning educational facilities and the roles of all participants in a building program with special emphasis on the roles of the superintendent and board of education.

ADS 795. Advanced Seminar in Teaching and Learning. (3G) Examination of a number of current teaching models to provide a framework for choosing those appropriate for a given classroom setting with special attention to the relationship between teaching strategies and learning outcomes.

ADS 796. Program Evaluation. (3G) Examination of instructional strategies and techniques of program evaluation with emphasis on the mastery of skills for utilization of selected programs for analyzing teaching/learning processes.

ADS 797. Advanced Seminar in Supervision. (3G) Investigation and evaluation of current trends and issues in supervision as they relate to the role of the curriculum and instructional specialist with special attention to the role of the instructional specialist in facilitating the teaching/learning process.

CURRICULUM AND INSTRUCTION (CAI)

Courses for Graduate Students Only

CAI 620. Curriculum Theory. (3G) Study of theoretical constructs of curriculum and the nature of experience as they relate to facilitating theory into practice. Emphasis on research and experimentation in developing curriculum theory, processes, materials and relationships.

CAI 621A. Strategies and Design in Human Development and Learning: Human Development. (3G) Examination of the process of program planning, development and evaluation.

CAI 621B. Strategies and Design in Human Development and Learning: Teaching. (3G) Planning, development and evaluation of instructional programs.

CAI 621F. Strategies and Design in Human Development and Learning: Curriculum. (3G) Planning, development and evaluation of curricular programs.

CAI 625C. Concepts of Teaching and Learning: Science. (3G) Seminar on current practices in teaching secondary science, including the implications of contemporary research for teaching and learning in the secondary science classroom.

CAI 625D. Concepts of Teaching and Learning: Mathematics. (3G) Seminar on current practices in teaching secondary mathematics, including the implications of contemporary research for teaching and learning in the secondary math classroom.

CAI 626D. Concepts of Diagnostic Instruction: Mathematics. (3G) Examination of the theory of diagnostic instruction and development of individual diagnostic techniques in mathematics.

CAI 635. Learning Media, Resources and Technology. (3G) Selection, use and evaluation of technological innovations in instructional media.

ELEMENTARY EDUCATION (ELE)

Courses for Undergraduates

ELE 485. Curriculum Development. (3) Seminar and practicum in the development of curriculum planning and implementation skills. The student is expected to work at least nine hours per week with small groups in an approved classroom setting.

ELE 486. Early Childhood Student Teaching. (9) Student teaching internship which provides supervised opportunities for learning, practicing and demonstrating professional competencies of K-3 teaching in an approved school setting.

ELE 487. Intermediate Student Teaching. (9) Student teaching internship which provides supervised opportunities for learning, practicing and demonstrating professional competencies of intermediate (4-9) teaching in an approved school setting.

ELE 488. Student Teaching Seminar. (3) Co-requisite: ELE 486 or ELE 487. Seminar which provides opportunities for students to develop instructional communication skills, diagnose pupil needs, develop materials and strategies, and evaluate the application of this learning in grade K-9 setting.

Courses for Graduate Students Only

ELE 625A. Concepts of Teaching and Learning: Integrated Studies. (3G) An opportunity for students to critically examine topics of interest on death.

ELE 670A. Clinical Experience in Early Childhood Education. (3G) Program of experimental learning activities in the student's level and/or area of academic concentration in an approved school setting (K-3). Offered only on a *Pass/No Credit* basis.

ELE 670B. Clinical Experience in Intermediate Education. (3G) Program of experimental learning activities in the student's level and/or area of academic concentration in an approved school setting (4-9). Offered only on a *Pass/No Credit* basis.

ELE 671A. Seminar and Internship: Teaching. (3-6G) Supervised experience in observation, involvement and administrative participation in clinical settings in elementary education. Emphasis is given to independent learning experiences and the personal and professional growth of the intern as a member of a learning team. Offered only on a *Pass/No Credit* basis.

Courses for Advanced Graduate Students Only

ELE 734. Reading in Research in Elementary Education. (3G) Seminar for in-depth examination of research literature in early childhood or intermediate education.

ELE 735. Readings in Learning and Development. (3G) Examination of selected theories of learning and development and research data about the development of human behavior interpreted in terms of multiple disciplines, including psychology, anthropology and ethnology.

READING (RDG)

Course for Undergraduates

RDG 351. Developmental Reading for Teachers (K-9). (3) Overview of the basic theoretical positions concerning the reading process and reading instruction, with emphasis upon the relationship between language development and reading. Classroom application of course content is an integral part of the course.

Courses for Advanced Undergraduates and Graduates

RDG 525. Reading in the Content Areas. (3) (3G) Examines theories, research, problems and instructional methods associated with reading in the content areas of the intermediate and secondary curriculum.

Courses for Graduate Students Only

RDG 625B. Language Development and Reading. (3G) Introduction to the relationship between the development of language competence and performance and the development of reading abilities and interests. Examines theories, instructional approaches and materials, and evaluation strategies related to language development and reading.

RDG 626B. Concepts of Diagnostic Instruction in Reading. (3G) Prerequisite: RDG 625 or permission of instructor. Examination, use, and critique of theories of reading processes and problems, diagnostic approaches and techniques, instructional strategies for assisting readers to improve reading proficiency.

RDG 630. Examination and Appraisal of Reading Methods and Materials. (3G) Examination of relevant issues and trends in the field of reading, with emphasis upon questions of effectiveness related to instructional programs, approaches and materials as well as related topics such as dialect, testing and literacy.

RDG 636. Reading Practicum (3G) Prerequisite: RDG 626B or permission of instructor. Course involves application and evaluation of instructional approaches in reading. Focus on working with students and colleagues in planning, implementing, observing and evaluating lessons.

RDG 671G. Internship: Reading. (3-6G) Prerequisite: Permission of instructor. Focus on assuming the role of the reading teacher who assists school staff members in assessing, planning, implementing and evaluating the reading program.

SECONDARY EDUCATION (SEC)

Courses for Undergraduates

SEC 490. Secondary Student Teaching. (9) Student teaching internship which provides supervised opportunities for learning, practicing and demonstrating professional competencies of secondary teaching in an approved school setting.

SEC 491. Student Teaching Seminar. (3) Co-requisite: SEC 490. Seminar which provides opportunities for students to develop instructional communication skills, diagnose pupil needs, develop materials and strategies, and evaluate the application of this learning in secondary settings.

Courses for Graduate Students Only

SEC 605. Adolescence and Learning. (3G) Study of adolescence as a phase of development and its relationship to the learning process.

SEC 670C. Clinical Experience in Secondary Education. (3G) Program of experimental learning activities in the student's area of academic concentration in an approved secondary school setting. Offered only on a *Pass/No Credit* basis.

SEC 671A. Seminar and Internship. (3G) Supervised experiences in observation, involvement and administrative participation in clinical settings in secondary education. Emphasis is given to independent learning experiences and the personal and professional growth of the intern as a member of a learning team. Offered only on a *Pass/No Credit* basis.

Courses for Advanced Graduate Students Only

SEC 750. Current Issues in Secondary Education. (3G) Study of problems currently affecting secondary schools with emphasis on the student's skills of problem identification and delineation and the development of alternative solutions and their consequences.

SEC 751. Evaluation of Secondary Curriculum and Instruction. (3G) Examination of ways to develop criteria and procedures for evaluating curricula and the instructional effectiveness of secondary classroom teachers.

SEC 752. Analysis of Secondary Teaching. (3G) Seminar on the systematic observation and analysis of instructional activities of teachers in secondary classrooms including classroom atmosphere and order, verbal and nonverbal communication, and the structuring of learning tasks.

SEC 753. Applied Research Seminar in Secondary Education. (3G) Design, implementation and dissemination of "action research" pertinent to a given problem of secondary education.

SEC 771. Internship: Peer Leadership in the Secondary School. (3G) Supervised clinical activity to develop and assess the student's ability to exert leadership among the staff of a secondary school to solve a specified problem.

SEC 772. Individual Projects in Secondary Education. (3G) In consultation with a faculty adviser, the student will identify and solve a problem in a specific setting of secondary education.

SPECIAL EDUCATION (SED)

Course for Undergraduates

SED 360. Developmental Exceptionalities. (3) Survey of human exceptionality, including the exceptionally gifted and those with developmental disabilities and handicaps.

Courses for Graduate Students Only

SED 603. Exploration of Human Variance. (3G) Examination of the historical antecedents of contemporary practices in the field of special education with emphasis on the conceptual models of child variance and current trends in the field of special education.

SED 612. Physiological Aspects of Learning. (3G) Examination of theories of learning as they relate to the structure and physiology of the central nervous system with emphasis on developmental abnormalities and disease processes that affect learning in children and youth.

SED 621G. Strategies and Design in Human Development and Learning: Exceptionality. (3G) Examination of the principles and practices in research and development of programs for exceptional students. Team taught with emphasis on service delivery models, individualized instruction and curriculum plans for special educators.

SED 621J. Strategies and Designs in Human Development and Learning: Self-Contained Class. (3G) Planning, implementation and evaluation of self-contained special education classrooms with emphasis on curriculum models, behavioral and academic strategies and individualized instruction for special needs learners.

SED 621K. Strategies and Designs in Human Development and Learning: Resource Room. (3G) Planning, implementation and evaluation of special education resource room programs with emphasis on scheduling, grouping for instruction, consultation, assessment and program planning.

SED 621L. Strategies and Design in Human Development and Learning: Teacher Consultation. (3G) Planning, implementation and evaluation of a special education teacher consultation program with emphasis on skills necessary to develop and coordinate consultation services for special needs students.

SED 625E. Concepts of Teaching and Learning: Gifted and Talented. (3G) Examination of the historical and philosophical perspectives of education for gifted and talented learners with emphasis on identification procedures, creativity, laws/policies and current research in the field of giftedness.

SED 625H. Concepts of Teaching and Learning: Learning Disabilities. (3G) Examination of learning disabilities with emphasis on theories, issues, current trends and definitions of learning disabilities as well as instructional strategies, program models and major contributions to the field.

SED 625I. Concepts of Teaching and Learning: Mental Handicaps. (3G) Examination of historical antecedents, major contributors, current practices, issues and trends in the field of mental retardation.

SED 625J. Concepts of Teaching and Learning: Emotional Handicaps. (3G) Examination of the conceptual models of emotional disturbance with emphasis on operational models and current practices based on the constructs of the models. Consideration of administrative arrangements for programs for children with emotional behavior disorders and the evaluation of the teaching process for these students.

SED 625K. Concepts of Teaching and Learning: Teacher Consultation. (3G) Examination of theories and practice of consultation with teachers with emphasis on interpersonal skills for providing consultation to teachers working with children with learning/behavior problems.

SED 626E. Concepts of Diagnostic Instruction: Special Education. (3G) Principles and practice of educational problem solving with emphasis on formal and informal assessment, observation and interviewing strategies for special educators.

SED 671H. Seminar and Internship in Human Development and Learning: Gifted and Talented. (3-6G) Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with gifted and talented students. Offered only on a *Pass/No Credit* basis.

SED 671J. Seminar and Internship in Human Development and Learning: Learning Disabilities/Mental Handicaps. (3-6G) Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with learning disabled and mildly mentally handicapped students. Offered only on a *Pass/No Credit* basis.

SED 671K. Seminar and Internship in Human Development and Learning: Emotional Handicaps. (3-6G) Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with students with emotional handicaps. Offered only on a *Pass/No Credit* basis.

SED 671L. Seminar and Internship in Human Development and Learning: Mental Handicaps. (3-6G) Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with mentally handicapped students. Offered only on a *Pass/No Credit* basis.

SED 671M. Seminar and Internship in Human Development and Learning: Teacher Consultation. (3-6G) Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with special needs students. Offered only on a *Pass/No Credit* basis.

SED 671N. Seminar and Internship in Human Development and Learning: Interdisciplinary Internship/Special Education. (3-6G) Prerequisite: Department approval. Supervised experiences in observation, instruction and administration of programs with special education students with emphasis on leadership in consultation, advocacy, staff development and supervision. Offered only on a *Pass/No Credit* basis.

TEACHER EDUCATION (TED)

Courses for Undergraduates

TED 340. Practicum in Instructional Methods. (3) Introductory practicum in the skills of teaching to provide experience and practice in establishing objectives, teaching to objectives and self-evaluating instructional behavior.

TED 440. Methods of Classroom Organization. (3) Introduction to educational practices including organizational patterns, staffing practices, management in individual classrooms and curriculum planning and implementation. Clinical observations and field-based practice are required.

Department of Health and Physical Education

Chairperson: Professor Murphy
Associate Professors: Bostian, Healey, Tillotson
Assistant Professors: Humble, Sloan
Lecturers: Avant, Fielding, Johnson, Parker, Wright

Helping Specialties

Completion of the undergraduate degree in human development and learning requires the development of competencies in one or more helping specialties. Two helping specialties are offered in physical education. Although the helping specialties are designed for students pursuing the degree in human development and learning, other students are invited to complete the requirements for a specialty or to take courses from the helping specialties as electives.

Movement Education Helping Specialty. The primary purpose of this area of concentration is to provide an opportunity for individuals to develop the knowledge and skills needed for helping people with play and performance forms of movement. Competencies which are gained will assist in preparing the student to help in activities which range from childhood play to quality performance in dance and athletics. The student who completes the movement education helping specialty will be able to use his/her expertise in schools, agencies and business.

The student must successfully complete Physical Education 351, 352, 361, 362 and 402 to satisfy the requirements of the Movement Education Helping Specialty.

Sports Helping Specialty. The Sports Helping Specialty is designed primarily to meet the needs of the non-physical education major who wishes to coach. To complete the Sports Helping Specialty the student must complete, with a grade of *C* or higher, 24 credit hours as specified. Twenty-one credit hours will suffice if PED 310 is waived for the student. (Students who have current certification in standard first aid and cardiopulmonary resuscitation may request a waiver of PED 310). The specific requirements are PED 270, 310, 370, 371, 372, 373, 374 and 375.

Students who successfully complete the Sports Helping Specialty will earn a written coaching endorsement. The endorsement will be for sports in which the student successfully completed a PED 270 course.

HEALTH EDUCATION GRADUATE TRACK: MASTER OF HUMAN DEVELOPMENT AND LEARNING DEGREE IN CURRICULUM AND INSTRUCTION

The central focus of the curriculum is the enhancement of the ability of health educators to provide information and strategies which will enable their students to actively seek optimal health. All courses in the curriculum focus on methodology, knowledge and skills for the primary purpose of helping the health education teacher affect health behavior appropriate for maintaining wellness at the highest level possible for each individual. Emphasis is placed on the school setting as contrasted to clinical situations. A graduate certificate in health education will be awarded to those who successfully complete the track and degree.

Requirements for the Health Education Graduate Track. The candidate for the degree of Master of Human Development and Learning must successfully complete a minimum of 36 semester hours of work in courses approved for graduate credit. Required courses for the degree with a track in health education are HED 620, 640, 650, 660 and 671, and HDL 600, 601 and 620. Health education electives may be substituted for up to two of the five required HED courses if the analysis of the student's transcript or health education knowledge test score

demonstrates a reasonable expectancy of competency in the knowledge and skills for which the courses were designed. The health education knowledge test is used for advising and curriculum evaluation only. Electives needed to complete the 36-semester-hour requirement may be selected from other graduate health education listings, other departments in the College of Human Development and Learning or other colleges at UNCC. Students may substitute other appropriate courses for health education courses with the consent of the health education program coordinator.

Admission to Candidacy in the Health Education Graduate Track. The academic requirements for admission to the University and to the College of Human Development and Learning graduate programs which are described under "Requirements for Graduate Admission" apply to admission to the health education track.

COURSE DESCRIPTIONS

HEALTH EDUCATION

Students who desire more information about the courses may review course outlines in the Department of Health and Physical Education.

Courses for Undergraduates

HED 201. Personal and Community Health. (3) A health survey course with emphasis on health behavior, decision-making and knowledge.

HED 301. Health Education in the Elementary School. (3) A methods course designed for the elementary specialist as an orientation to content, curriculum and methods appropriate for teaching health education in grades K-6.

Courses for Graduate Students Only

HED 620. Teaching School Health. (3G) Addresses the various elements involved in health instruction including philosophy, curriculum, methods, classroom management, community resources, evaluation and behavior modification.

HED 630. Chronic and Communicable Disease in Man. (3G) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through an epidemiological approach to modern diseases.

HED 635. Health Product and Service Consumerism. (3G) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through emphasis on the individual consumer at the health marketplace.

HED 640. The Health Educator and Mental Health. (3G) The study of mental health from the perspective of the role of the health educator as a facilitator of mental health with emphasis on primary prevention in the school setting.

HED 650. Responsible Drug Use in Contemporary Culture. (3G) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through the study of the exploration of use, misuse and abuse of natural and synthetic chemicals in today's society.

HED 660. Human Sexuality and Family Life Education. (3G) A course designed for teachers responsible for family life education in school health programs.

HED 670. Environmental Influences on Health: A Global Perspective. (3G) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through study of the causes and effects of contemporary environmental problems.

HED 671. Seminar and Internship in Health Education. (3-6G) Prerequisite: Completion of 12 or more graduate credit hours in health education and permission of the health education program coordinator. Supervised experiences in observation, involvement and administrative participation in clinical settings in schools, clinics, learning centers, social agencies and other centers devoted to human development and learning. May be repeated for a different seminar and internship. Offered only on a *pass/no credit* basis.

HED 680. Applied Nutrition for Today's Consumer. (3G) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through study of the basic dietary needs of humans.

HED 699. Problems in Health Education. (3G) Topics and special problems related to ideas, practices or significant trends in health education. Seminars and independent studies.

PHYSICAL EDUCATION

Students who desire more information about the courses may review course outlines in the Department of Health and Physical Education.

PED 101. Foundations of Physical Conditioning. (1) The application and basic science of various physical training programs designed to improve and maintain physical fitness.

PED 102. Weight Training. (1) The basic mechanics of weight training. Emphasis on anatomy, tests and measurements, individual strength development and isometric training.

PED 103. Fencing. (1) The skills and rules of the sport of fencing.

PED 106. Adaptive and Developmental Physical Education. (1) Prerequisite: Permission of the instructor. Prescribed ameliorative exercises adapted to individual needs, capacities and interests. Primarily designed for the individual with anatomical and functional defects.

PED 110. Beginning Swimming. (1) Designed to teach weak or nonswimmers a basic stroke and safe entry into and exit from the water.

PED 111. Intermediate Swimming. (1) Emphasis on gaining competency in at least four basic strokes and two dives.

PED 115. Water Sports. (1) Rules and skills of water polo and water basketball.

PED 120. Beginning Tennis. (1) The rules, basic skills and strategy.

PED 123. Beginning Badminton. (1) The rules, basic skills and strategy.

PED 125. Beginning Handball. (1) The rules, basic skills and strategy.

PED 140. Beginning Golf. (1) The grip, stance, stroke, use and selection of clubs, rules and etiquette.

PED 142. Archery. (1) The fundamental skills and selection, care and repair of equipment.

PED 150. Volleyball. (1) The rules, fundamental skills and strategies.

PED 160. Gymnastics. (1) The fundamental skills of gymnastics at the beginning level.

PED 212. Advanced Lifesaving. (2) Prerequisite: PED 111 or instructor's permission. The science and skills associated with lifesaving. Qualifying students will receive the American Red Cross Advanced Lifesaving Certificate. One hour lecture and two hours laboratory each week.

PED 213. Water Safety Instruction. (3) Prerequisite: Current American Red Cross Advanced Lifesaving Certification. The study of the techniques used in teaching people aquatic skills. Qualifying students will receive the American Red Cross Water Safety Instructor's rating.

PED 219. Scuba Diving. (3) Prerequisite: Demonstrate appropriate swimming ability relative to current SCUBA standards as prescribed by recognized SCUBA certifying bodies. The course content deals with the science and skills associated with the use of self-contained underwater breathing apparatus. Students who demonstrate the required qualities may request certification as an open water SCUBA diver.

PED 220. Advanced Scuba Diving. (1) Prerequisite: Certified open water diver or certification as a Basic SCUBA Diver with a minimum of 10 logged dives. The knowledge and skill required for underwater navigation, search and recovery, limited visibility diving and deep diving. The student will be required to go on two weekend long open water dives. Advanced Open Water Diver Certification will be granted to students who qualify.

PED 270. The Fundamentals of Teaching Sports. (3) The identification of basic skills and the presentation of selected methods, strategies and styles for teaching/learning the following sports: A. Basketball; B. Baseball; C. Softball; F. Football; G. Gymnastics; S. Soccer; T. Tennis; Q. Swimming; V. Volleyball; and X for Conditioning.

PED 310. Emergency Medical Care and Rescue. (3) Knowledge and techniques for administering prompt and appropriate first aid and/or emergency medical care and rescue in situations when the services of qualified medical personnel are not available or are delayed.

PED 333. Movement Experiences for Elementary School Children. (3) Introduction to the role of movement and physical activity in the elementary school program. Examination of the purposes and objectives, current program content and various teaching strategies used in elementary level physical education.

PED 351. Introduction to Human Movement: A Personal Approach. (3) An in-depth study of human movement in its purest form followed by a study of the analysis of movement in games, dance, gymnastics and aquatic settings.

PED 352. Analysis and Performance of Human Movement. (3) Prerequisite: PED 351 or permission of instructor. Advanced analysis and practical application of basic movement in specific sport, dance, gymnastic and aquatic skills.

PED 361. Introduction to Movement Education. (3) An in-depth study of movement as the content of physical education especially in terms of movement activities suitable for elementary school children.

PED 362. Movement Education Content Development and Instruction. (3) Prerequisite/Corequisite: PED 361 or permission of instructor. Theoretical and practical examination of the movement education approach to individual development in elementary school.

PED 370. Sports Strategies. (3) Prerequisite: At least one course in PED 270. Methods, techniques and processes for developing athletic strategies.

PED 371. Motivation and Behavior in Sport: An Overview. (3) A macro-survey of motivation and behavioral factors in sports.

PED 372. Sport, Culture and Society: An Overview. (3) A macro-survey of social and cultural factors influencing and influenced by sport.

PED 373. The Administration of Athletic Programs. (3) An introductory course in the management of sports and athletic programs.

PED 374. Sports Injury Prevention and Management. (3) Prerequisites: PED 310 or consent of instructor. The study and practice of modern principles of the prevention and management of sports injuries. Two lecture and three laboratory hours each week.

PED 375. Conditioning for Maximum Sports Performance. (3) Prerequisites: PED 310 or consent of instructor. A study of biomechanical and physiological principles of conditioning for maximum sports performance. Two lecture and three laboratory hours each week.

PED 402. Movement Problems/Topics. (1-6) Prerequisites: PED 351, 352, 361 and 362 or consent of instructor. An examination of movement problems/topics chosen by the students which relate to special areas of interests.

Courses for Advanced Undergraduates and Graduates

PED 504. Perceptual Motor Development. (3) (3G) A study of the theories, principles and research related to perceptual-motor development of children.

PED 505. Perceptual Motor Learning. (3) (3G) Prerequisite or corequisite: PED 504 or consent of instructor. A study and analysis of perceptual-motor learning of children and its effect on school performance and the relationships of perceptual-motor development to reading, writing and mathematics.

PED 508. Perceptual Motor Therapy. (3) (3G) Prerequisite: PED 505 or consent of the instructor. Observation of and evaluation and therapy for children with perceptual-motor dysfunctions. May be repeated for credit with approval of instructor.

PED 510A. Perceptual Motor Therapy Laboratory. (1) (1G)

PED 510B. Perceptual Motor Therapy Laboratory. (2) (2G)

PED 510C. Perceptual Motor Therapy Laboratory. (3) (3G) Prerequisite or corequisite: PED 508 and/or consent of instructor. Supervised observation, testing and clinical teaching of children with perceptual-motor dysfunction. Course may be repeated for credit with approval of instructor.

Department of Human Services

Acting Chairperson: Professor Burke
Distinguished Professor: Powers
Professor: McLeod
Associate Professors: Robinson, Rowland
Associate Professors: Ammons, Barret, Furr, Kochendofer, Parry, Shepard
Lecturers: Colby, Cole, Lynch, Parker, Parrish, Torres

The Department of Human Services administers three programs in the College of Human Development and Learning. Focusing primarily on developing the knowledge and skills used within a variety of helping relationships, the Department offers undergraduate programs in child and family development and human services, and graduate programs in counseling and guidance at both the master's and sixth-year levels.

UNDERGRADUATE PROGRAMS

Human Services. The degree program in human services leads to a B.A. in human development and learning. While the degree is a part of the College of Human Development and Learning, there is interdisciplinary advising to plan a meaningful program in the human service field.

The program is predicated on the need in the community for persons with knowledge and competencies as helping generalists and with entry level job skills in one particular area of concentration. The area of concentration may be traditional, such as in the political science or social science areas, or it may be thematic, such as, but not limited to, substance abuse, outdoor education or aging.

The major focus of the human services training is to provide the knowledge and skills necessary to work with individuals and groups toward helping them develop to their maximum potential. The program has a heavy experiential and practical service component. The student is also encouraged to incorporate approved training by human resource agencies into their program when appropriate to their concentration.

Course Requirements.

General Studies Requirement	42-43 hours
Human Services Core Requirements	39 hours
Area of Concentration (Helping Specialty)	19-24 hours
Electives	20-26 hours

Child and Family Development. This program offers course work focused on the growth and development of children and their relationship to the family unit. A revision of the program is in process. This degree program is intended for students seeking training in nursery and preschool education, parent education and other developmental perspectives. The UNCC Child Development Center for Day Care, operated in conjunction with the program, offers experiential learning opportunities for both undergraduate and graduate students.

GRADUATE PROGRAMS

Counseling and Guidance. The Counseling and Guidance Program offers course work at the graduate level leading to the master's degree (MHDL) and the certificate of advanced study (CAS) in both school and agency counseling. The counseling program prepares counselors for a variety of work settings including elementary and secondary schools, vocational-technical

schools, community agencies, the correctional system and other environments in which the helping relationship can be utilized. Graduates of this program are prepared to:

1. Work indiviudally and in groups with clients on educational, vocational, social, emotional and/or physical concerns.
2. Consult with other professionals concerning the clients' needs.
3. Provide information and understanding to clients in the areas of educational, social and/or vocational planning.
4. Conduct and facilitate local research efforts.

Specific knowledge and skills appropriate to master's or advanced certificate levels will also be developed.

The Master's Degree (MHDL) with a Concentration in Counseling and Guidance.

Programs are developed in two tracks, school counseling and agency counseling. The 42-hour program typically consists of the following courses: *Core Requirements* (9-12 hours): HDL 600, 601, 620 and HDL 609 or PSY 504; *Skill Development* (18 hours): CLG 663, 665B, 665C, 667 and 671B; and *Specialization* (12-15 hours). At least six hours must be taken outside the College.

Course work should be planned with the adviser so that it is consistent with the student's professional goals as well as programmatic and state guidelines.

Students in the school counseling track are eligible for a graduate certificate in counseling and guidance. Students seeking graduate certification as school counselors without the equivalent of the North Carolina "A" Certification are required to complete additional internship hours, thus reducing electives.

All students must successfully complete either a written comprehensive exam or a master's project as a requirement for graduation. While these would be completed at or near the end of the student's program of study, the student should consult with the adviser within the first 12 hours of course work concerning procedures and preparation for either option.

The Certificate of Advanced Study (CAS) with a Concentration in Counseling and Guidance.

The certificate of advanced study is a program for the post-master's student seeking to further his/her skills in counseling and guidance. Students are expected to continue to refine their skills in delivering counseling services as well as to develop competencies in the administration of counseling programs in supervising other helping professionals.

The certificate of advanced study requires 30 hours beyond the master's degree. A typical program would consist of the following:

Required Courses (15 hours): HDL 610 and 725; CLG 772, 780, 781 and 782; and *Electives* (12 hours): Electives will be selected in consultation with the adviser. These electives may include courses offered for graduate credit within the College or in other departments.

COURSE DESCRIPTIONS

CHILD AND FAMILY DEVELOPMENT (CFD)

Courses for Undergraduates:

CFD 415. Learning and Development. (3) Examination of the relationship of learning and development with emphasis on conceptualizing child development and interpreting data related to growth and development. Specific attention will be given to the affective, cognitive and psychomotor domains and theories as seen in a multi-cultural context.

COUNSELING AND GUIDANCE (CLG)

Courses for Undergraduates

CLG 463. Guidance and Behavior Growth. (3) Introduction to guidance in the context of the helping relationship with emphasis on the development of understandings, approaches and techniques for helping others make decisions directed toward the solution of problems and the facilitation of self-understanding and growth. Open to students not seeking teacher certification.

Courses for Graduate Students Only

CLG 621E. Strategies and Designs in HDL: Counseling. (3G) Examination of principles and practices for research and development of programs in Human Development and Learning. Team taught with emphasis on developmental designs, preventive programs, objectives, and organizations.

CLG 663. Developmental Aproaches to the Theory and Practice of Guidance. (3G) Examination of guidance and counseling with emphasis upon the philosophical, social and psychological bases for the helping relationship and development of competencies — self analysis, value judgments and the creation of relationships — needed to facilitate the growth of others toward personhood.

CLG 664. Introduction to Theories of Family Counseling. (3G) Examination of appropriate interventions in working with families which focuses on the major theorists in the field of family counseling and the techniques developed by each. The course does not prepare students to function as a marriage or family practitioner.

CLG 665B. The Helping Relationship: Group Process. (3G) Investigation of concepts of group counseling and the means for developing facilitation interaction in a group which may include an experiential component as a major learning activity.

CLG 665C. The Helping Relationship: Counseling Techniques. (3G) Examination of the concepts of individual counseling and the means for establishing facilitative relationships including demonstration of basic counseling skills by students.

CLG 667. Practicum in Counseling and Guidance. (3G) Prerequisite: HDL 663 and 665C. Supervised experience for students to interact with individuals and groups from environments in which the student is preparing to work. Students will apply theories and techniques for their counseling interactions with special attention given to the development of evaluative criteria for self and peer assessment. Graded on *Pass/No Credit* basis.

CLG 668. Elementary School Counseling and Guidance. (3G) Prerequisites: HDL 663, 665B, 665C or permission of the instructor. Introduction to the guidance function in the elementary school with emphasis on the counselor's role in: (a) counseling with students on a one-to-one group basis; (b) consulting with principals, teachers and parents; and (c) coordinating school and community resources for the optimum benefit of the elementary school child.

CLG 669. Occupational Information. (3G) A counseling-oriented course designed to help the counselor and/or career education teacher develop the ability to use career information with emphasis on understanding of occupational information, systems of collection and usage forms.

CLG 671B. Seminar and Internship in HDL: Counseling (3-6G) Prerequisite: Permission of the College of Human Development and Learning. Supervised experience in a professional setting and a concurrent seminar to analyze behavior, develop materials, study administrative models and examine theory in relation to practice. Offered only on a *Pass/No Credit basis.*

Courses for Advanced Graduate Students Only

CLG 780. Administration and Supervision of Counseling Services. (3G) Planning, operation, implementation and supervision of counseling and guidance services in schools and agencies with emphasis on the development of administrative and supervisory skills.

CLG 781. Sixth-Year Field Experience in Counseling and Guidance. (3G) Field experience to allow the student to integrate knowledge while under supervision, as well as a weekly seminar for instruction and support. Emphasis on supervisory, consultative and program evaluative competencies consistent with the student's career objectives. Offered on a *Pass/No Credit basis*. May be repeated for credit.

CLG 782. Individual Assessment (3G) Prerequisite: HDL 609 or PSY 504. Examination of the major aptitude, intelligence and other psychological tests commonly used in counseling with emphasis on test theory as well as the administration, scoring and interpretation of tests and the communication of their results.

Air Force Aerospace Studies Area (Air Force ROTC)

Professor: Major White
Assistant Professor: Capt. Chambers

The Air Force Reserve Officer's Training Corps (AFROTC) program at the University of North Carolina at Charlotte provides two programs for students to qualify for a commission as a second lieutenant in the Air Force. The general objective of the Air Force program is to instill in each student a basic understanding of associated professional knowledge, a strong sense of personal integrity and individual responsibility, an appreciation of the requirements of national security, and an opportunity to learn and develop leadership ability. The 100 and 200 courses are available to all University students whether or not they wish to qualify for a commission.

FOUR-YEAR PROGRAM

The four-year program consists of classroom and laboratory work during the four undergraduate years and four weeks of field training, usually attended between the sophomore and junior years, at an airbase.

During the first two years the program acquaints students with aerospace history, the mission and organization of the Air Force, including technological advances and current research and development activities. Students also begin leadership training. Students practice leadership talents and abilities by assuming positions of responsibility in the Cadet Corps.

TWO-YEAR PROGRAM

All requirements for commissioning can be completed in the two-year program. Students may apply for entry if they intend to complete two more full academic years either *undergraduate, graduate* or a *combination of both.* Prior to formal enrollment, each student successfully completes six weeks of field training at an Air Force base. All students in this program receive $100 a month tax free subsistence.

SCHOLARSHIP PROGRAM

Air Force ROTC awards scholarships at the freshman, sophomore and junior levels. They are available to qualified cadets in the two-year and four-year programs. Scholarships are given on a semester basis. The maximum is eight semesters (four years), the minimum four semesters (two years). Scholarships of seven, six and five semesters are also available.

Enrollment in the aerospace studies course is a requirement for scholarship eligibility. Scholarships cover full tuition, laboratory expenses, incidental fees and books. Scholarship cadets also receive $100 a month tax free subsistance.

Four-year scholarships are also available to high school students. High school students interested in making application should write: Air Force ROTC (PA), Maxwell AFB, Alabama 36112 during their junior year or before December of their senior year.

COMMISSION REQUIREMENTS

To be eligible for the Air Force ROTC advanced program (final two years) and commissioning, a student must be a citizen of the United States, physically qualified for commission in the Air Force, not under 14 years of age and, upon graduation, no more than 30 years of age. For those with prior military service, commissioning must occur not later than age 35.

In addition, cadets must pursue work leading to at least a bachelor's degree and be willing to sign a formal agreement at the beginning of the advanced course or upon initiation of a college

scholarship. The agreement, an enlistment into the Air Force Reserve, obligates the student to remain in the ROTC program, accept a commission and serve the required period in the Air Force upon graduation.

LEADERSHIP LABORATORY

Each cadet participates one hour per week during each semester of enrollment. Leadership Laboratory is scheduled the same day each week for the entire cadet corps. The program is designed to facilitate effective learning and development of management and subordinate relationships.

The objective is to provide a laboratory environment in which each student receives an opportunity to learn and develop leadership and management abilities. Cadets plan, organize and carry out the cadet group program with minimal guidance from the staff.

Cadets are promoted to cadet officer grades in the corps commensurate with their knowledge, experience and demonstrated performance. Periodically, they move up the chain of command into positions of greater responsibility.

COURSE DESCRIPTIONS

AS 101. U.S. Air Force Today. (1) Study begins with discussion of the citizen soldier and relationships between war and morality. Subsequent lessons deal with mission and organization of the U.S. military forces under the President with emphasis on U.S. Air Force mission and organization, U.S. human rights policy and perceptions of the Soviet threat. Attention is given to the identification of strengths and weaknesses in the student's writing skills.

AS 101L. U.S. Air Force Today. (0) Leadership Lab. Corequisite AS 101.

AS 102. U.S. Air Force Today. (1) A continuation of AS 101.

AS 102L. U.S. Air Force Today. (0) Leadership Lab. Corequisite AS 102.

AS 201. Development of Air Power. (1) Deals with the nature of war and traces the development of U.S. air power, including airpower organizations, missions, doctrines and strategies, from early military use of balloons to the contemporary use of space vehicles. These developments, particularly more recent ones, are discussed in the contexts of evolving national policies and the changing global political situation. Attention is given to the identification of strengths and weaknesses in the student's speaking skills.

AS 201L. Development of Air Power. (0) Leadership Lab. Corequisite AS 201.

AS 202. Development of Air Power. (1) A continuation of AS 201.

AS 202L. Development of Air Power. (0) Leadership Lab. Corerequisite AS 202.

Courses for Advanced Undergraduates

AS 301. Defense Administration and Military Management. (3) Survey of the problems in defense administration and military management aimed at integrating concepts and ideas from different academic disciplines and contrasting organizational developments.

AS 301L. Defense Administration and Military Management. (0) Leadership Lab. Corequisite AS 301.

AS 302. Leadership and Management. (3) A continuation of AS 301.

AS 302L. Leadership and Management. (0) Leadership Lab. Corequisite AS 302.

AS 401. The Changing Military Profession in a Democratic Society. (3) Analysis of the role of the Armed Forces as an integral element of contemporary American society including a detailed examination of the broad range of American civil-military relations and the environmental context in which U.S. defense policy is formulated and implemented.

AS 401L. The Changing Military Profession in a Democratic Society. (0) Leadership Lab. Corequisite AS 401.

AS 402. Strategy and the Policy Process. (3) A continuation of AS 401.

AS 402L. Strategy and the Policy Process. (0) Leadership Lab. Corequisite AS 402.

Military Science Area (Army ROTC)

Professor: Colonel Powell
Assistant Professors: CPT Shields, CPT Branch

Students at the University of North Carolina at Charlotte may elect to participate in the Army Reserve Officers' Training Corps (ROTC) area as part of their academic curriculum. Students successfully completing the military science curriculum will receive 19 credit hours applicable towards general elective requirements and will be commissioned second lieutenants in the Regular Army, Army Reserve or National Guard.

Army ROTC is a four-year area consisting of the **Basic Course** (Freshman and Sophomore years) and the **Advanced Course** (Junior and Senior Years). *No military commitment is incurred for participation in the Basic Course.* ROTC is open to both men and women.

Eligibility for admission into the advanced course is on the basis of demonstrated officer potential and a physical examination. Members of the Reserve Components, honorably discharged veterans and students with a JROTC background may be eligible for placement into the advanced course provided they are otherwise fully qualified. Transfer students with two or more years remaining towards degree completion may also qualify for direct entry into the advanced course by participation in paid summer training. Advanced course students attend a paid six-week summer camp prior to commissioning.

All students enrolled in the Advanced Course receive a tax-free subsistence allowance of $100 per academic month. One, two, and three-year scholarships are awarded on a competitive basis. Scholarships pay the full cost of tuition, textbooks and lab fees as well as the monthly subsistence allowance. All uniforms and textbooks for ROTC instruction are provided at no cost to the student. The ROTC student body is organized as a corps of cadets, which sponsors several social and professional enrichment activities such as the: ROTC Honor Guard, Scabbard and Blade Society (a National Military Fraternity) and the RAIDERS (a commando oriented organization.)

COURSE DESCRIPTIONS

Courses for Undergraduates

MS 101. Basic Course I. (1) Introduction to ROTC and the U.S. Army including the rationale of the national defense structure and the mission and role of the Army. Introduction to modern theories of leadership and their application to today's environment. One lecture hour per week offered in the fall and spring semester and summer session.

MS 102. Basic Leadership Laboratory I. (1) Practical work in basic military skills and physical ability development. Introduction to land navigation, drill and ceremony, communications, and the Army's standard individual weapons with emphasis upon team work and confidence building through participation in leadership activities. Three laboratory hours per week offered in the fall and spring semester and summer session.

MS 201. Basic Course II. (2) Prerequisite: MS 101. Introduction to map reading techniques, small unit tactics and the role of the junior officer in troop leading. First aid in a tactical environment will be surveyed. Two lecture hours per week offered in the fall and spring semester and summer session.

MS 202. Basic Leadership Laboratory II. (1) Prerequisite: MS 102. Emphasis upon developing proficiency in basic military skills with students assuming leadership roles when the class functions as a military unit. Assertive, confident leadership through knowledge and practice will be stressed. Three laboratory hours per week offered in the fall and spring semester and summer session.

Courses for Advanced Undergraduates

MS 301. Advanced Course I. (3) Prerequisite: Basic course or consent of the professor of military science. Introduction to the advanced ROTC area and an examination of branches of the Army, military teaching principles, management and small unit tactics, including refresher and advanced training in communications, drill and ceremonies, land navigation and physical fitness. Students must be successfully pursuing a commission in the Regular Army, Army Reserve or Army National Guard. Three lecture hours per week offered only in the fall semester.

MS 302. Advanced Course II. (3) Prerequisite: MS 301 or consent of the professor of military science. Designed specifically to prepare cadets for attendance at advanced camp with emphasis on mastering skills necessary to operate and maintain military equipment and developing self-confidence. Three lecture hours per week offered only in the spring semester.

MS 303. Advanced Leadership Laboratory I. (1) Prerequisite: MS 301 or consent of the professor of military science. Practical application and additional development of military skills and leadership principles with emphasis on mastery of all previous military skills with much of the training being performance oriented. Students develop their leadership by rotating through various leadership positions during the conduct of their training. Three laboratory hours per week offered only in the spring semester.

MS 401. Advanced Course III. (3) Prerequisite: MS 302. Examination of staff organization procedures and purpose including a detailed analysis of the total Army concept (Regular Army, Army Reserve, National Guard). Practical application of military briefing techniques and examination of the relationship of the Army officer and society through a survey of military history. Three lecture hours per week offered in the fall semester only.

MS 402. Advanced Course IV. (3) Prerequisite: MS 401. Examination of military law, professional ethics, personnel and training management with special emphasis upon the student's smooth transition to active service or service with the reserve components in this final pre-commissioning course. Three lecture hours per week offered in the spring semester only.

MS 403. Advanced Leadership Laboratory II. (1) Prerequisite: MS 401. Extensive practical work in military planning and instructional techniques with special emphasis upon development of applied leadership skills necessary as a commissioned officer. Three laboratory hours per week offered only in the spring semester.

College of Nursing

Dean: Professor Schlachter
Dean Emeritus: Edith Brocker
A. Sue Kerley Professor of Nursing: Caddell
Professors: Jernigan, Nicholson
Professor Emeritus: V. Smith
Associate Professors: Andrews, Clinton, Haynes, Mauldin, Granger, Head
Assistant Professors: Davenport-Cook, Dulski, Herbert, King, Moore, Moses, Ruth, Sanders, Schwobel, M. Smith, Stephenson, Zweber
Instructors: Chiles, Coleman, Newman, Whitley-Gates

Purpose. The College of Nursing derives its purpose from the purposes of the University of North Carolina at Charlotte and affirms its intention to teach nursing, to participate in the search for truth and to serve those who are concerned about the health care of the citizens of North Carolina, the nation and the world. The purpose of the College of Nursing is to prepare a nurse who is a generalist, capable of:

1. providing nursing care for members of families in various settings;
2. functioning as a change agent and a leader in the promotion of health; and
3. advancing through further education at the graduate level.

Philosophy. The faculty believes that each human being is a unified biopsychosocial system which strives for equilibrium through complex, adaptive processes. We view human development as a dynamic, continuous process with the family unit as a setting which is characterized by nurturing, socialization and interdependence.

Health is viewed as a continuum throughout which the individual interacts with and adapts to continuous changes in the internal and external environments. We further believe that health represents a state of integrated functioning where the individual strives to maximize one's unique capabilities and resources.

We believe that nursing is an applied science, the unique service of which is extended on the basis of need rather than privilege. The goal of nursing is to promote the highest possible level of wellness. This goal is founded upon the assumption that human life has intrinsic worth both as an individual and as a collective experience. The process of nursing is deliberative, interactive and scientifically based, the focus of which is assisting individuals, families and societal groups in utilizing their resources to achieve an optimal level of functioning. The nurse-client relationship is a collaborative one guided by a respect for individual freedom and dignity and a recognition of mutual responsibility.

The faculty believe that preparation for professional nursing practice is built upon a liberal education base drawn from the scientific and humanistic disciplines and nursing theory. A university environment provides opportunity for each student to develop greater self-knowledge, a fuller understanding of the nature of humanity and competencies relevant to individual goals.

We believe that the student should be an active, self-directed participant in the educational process. Learning goals should be clearly defined and should provide flexibility. The faculty should facilitate learning through the creation of a mutually enriching faculty-student relationship in an environment conducive to intellectual inquiry and freedom of expression.

We believe that the nurse prepared at the baccalaureate level is a generalist, capable of practicing health care in a variety of settings. The practitioner is able to provide comprehensive health care in collaboration with other health professionals.

The graduate also assumes leadership and advocacy roles in implementing changes within the health care system and in encouraging consumer participation in health care decisions. As a professional, the nurse evaluates current practice, initiates change, influences health care legislation and utilizes research findings.

Finally, the graduate of this baccalaureate program is provided with a sound foundation for advanced study, research and continued intellectual personal and professional growth.

Objectives. In a setting designed to foster inquiry and discovery, the curriculum leading to a bachelor of science in nursing degree is planned through a continuum of learning experiences to prepare a professional nurse who will:

1. utilize the nursing process in promoting, maintaining and restoring optimal health of individuals, families and groups;
2. utilize appropriate nursing roles in supporting the health of individuals, families and groups in a variety of settings;
3. utilize biopsychosocial theories and concepts in assisting individuals, families, groups in achieving optimal health;
4. establish colleague and interdisciplinary relationships in achieving health care goals;
5. demonstrate movement toward self-actualization by evaluating personal behaviors and striving for personal and professional growth;
6. function as a change agent and leader in promoting of health of the family, the community and society;
7. contribute to nursing knowledge through critiquing, participating in and utilizing scientific investigation; and
8. advance personal knowledge through graduate or continuing professional education

Study Abroad. The College of Nursing offers a three semester hours credit course at The Nightingale School of Nursing in London, England. While in London the student has the opportunity to study the health care system of Great Britain as well as the educational process for nurses in England. The study time abroad is three weeks in the early summer months.

BSN GENERIC PROGRAM

Requirements. (Note: Students enrolled prior to Fall 1980 will follow the requirements as stated in the catalog under which they entered.) The bachelor of science in nursing degree is comprised of 120 semester hours credit. The program may be completed in four academic years of eight semesters of full time study. Fifty-five of these hours are in the nursing major. The general education and prerequisite foundation courses comprise 53 semester hours credit. The student selects 12 additional hours of electives from general education or nursing. The 55 hours of nursing include three hours of self-directed contractual study. This self-directed experience is designed to be completed during the senior year. The student may contract for as much as six hours of self-directed study, with the three additional hours counted as electives.

Nursing and general education courses are arranged so that there is a continual interchange of theory and practice. The curriculum of the College of Nursing proceeds in a series of planned sequential learning experiences that involve the student in the teaching-learning process and permit development of the intellectual processes of inquiry, analysis, synthesis and creativity.

Immunization and Status of Health. Prior to participation in clinical experiences, all students must submit evidence of current immunizations as well as an annual review of their overall health status.

Challenge Examinations. Challenge examinations in nursing courses are open to any student who is currently enrolled in the College of Nursing and who has had previous formal instruction in the subject area content for which he wishes to challenge for credit. Equivalency credit for nursing courses will be determined on the basis of written validation examinations in each clinical nursing course, and the applicant will be given credit only for those courses in

which he attains a grade of *C* or better on the challenge examination. No challenge examination may be repeated. If any attempt at challenge is unsuccessful, the student will be required to enroll in the course for both theory and clinical laboratory experience.

Ten-Year Rule for Natural Science Courses. Credit for natural science courses taken more than 10 years ago will be accepted as elective credit only; it will not satisfy general degree requirements or related course requirements.

Requirements for Progression in the Nursing Program. In order to promote the progression of safe practitioners from one level to the next within the College of Nursing and eventually into the nursing profession, students

1. must achieve a minimum grade of *C* in *each nursing course*
   a. Course grades reflect combined theoretical and clinical performances, neither component of which must be less than *C*.
   b. Only four hours of *D* credit in a natural science is acceptable for credit by the College of Nursing.
2. may not repeat a nursing course more than once, and no more than two nursing courses may be failed during the student's matriculation in the nursing major. Taking a challenge examination constitutes one attempt at the course. If a student repeats a nursing course and does not achieve a minimum of *C*, the student will be ineligible to continue enrollment in the College of Nursing.
3. may not progress to the next level in the nursing curriculum until all prerequisite courses have been completed.
   a. may not attempt junior level nursing courses until Sociology 151, a sociology or anthropology elective, Psychology 101, Biology 101, 203, 205 and Chemistry 103 and 104 and sophomore level nursing courses have been completed and a 2.0 QPR has been earned, overall as well as a 2.0 QPR in the nursing major.
   b. may not attempt senior level nursing courses until all junior level nursing courses have been completed, including Psychology 307 and a 2.0 QPR has been earned, overall, as well as a 2.0 QPR in the nursing major.
4. must achieve a 2.0 QPR in the nursing major to graduate.

CURRICULAR REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN NURSING GENERAL PROGRAM

Students may not take more than 16 hours during a semester without permission of the dean.

Freshman Year

English 101	3	English 102	3
Math 101	3	Math 122-C	3
Psychology 101	3	Biology 101	4
Chemistry 103	4	Chemistry 104	4
	13		14

Sophomore Year

Biology 203	4	Biology 205	4
Psychology 307	3	Sociology (Family)	3
Sociology 151	3	*Nursing 102	3
Humanities	3	Humanities	3
Electives	3	Elective	3
	16		16

Junior Year

Level I		*Level II*	
Nursing 305	6	Nursing 306	8
Nursing 307	3	Nursing 308	2
Nursing 309	2	Nursing 310	2
Nursing 311	3	Nursing 312	2
	14		14

Nursing 490: Summer — Self Directed Role Practicum 3-6 hrs. credit.

Senior Year

Level III		*Level IV*	
Nursing 405	6	Nursing 406	6
Nursing 407	2	Nursing 408	2
Nursing 409	2	Nursing 410	2
Nursing 411	2	Nursing 412	2
Elective	3	Elective	3
	15		15

*Human Development Throughout the Life Span — any comparable course will meet this requirement.

TOTAL HOURS REQUIRED FOR DEGREE: 120 semester hours

General Education Foundation	53 (44%)
Electives	12 (10%)
Nursing Major	55 (46%)

PATHWAY OPTION FOR REGISTERED NURSES

The Pathway Option is an upper division program for Registered Nurses which leads to a bachelor of science in nursing degree.

Requirements for Admission. To be eligible for admission to the Pathway Option, applicants must have:

(1) current licensure as a registered nurse in the state in which they will have student clinical experience;

(2) completed UNCC's general degree requirements and related behavioral and natural sciences required of nursing students;

(3) an overall 2.5 grade point average;

(4) practice liability insurance (included in tuition and fees) to cover student clinical experience;

(5) a minimal grade of *C* in required natural science courses;

(6) a letter of recommendation from employer;

(7) a minimum of one-year work experience occurring within five years prior to enrollment; and

(8) completed NUR 102 or equivalent course in human development throughout the life span.

Course Requirements. The curriculum is designed to build upon the registered nurse's experience, knowledge, needs and goals. Although the overall goals of the curriculum are the same as the generic program, the process of attainment of these goals is different. The curriculum is developed around three major areas: the process of scientific inquiry, the nursing process, the health continuum and nursing roles.

The nursing content of the curriculum can be completed in one calendar year. It consists of four seven-week modules including clinical nursing and two research seminars. Upon successful completion of a comprehensive post-test at the end of the first semester, up to 18 hours of nursing credit may be awarded for prior learning from work, life and educational experiences.

General Degree Requirements and Prerequisites.

	Semester Hours
English	6
Humanities	6
Mathematics (College mathematics and statistics)	6
Social Science (General and abnormal psychology, general and family sociology)	12
Natural Science (general chemistry-8, microbiology-4, anatomy and physiology-4)	16

Natural sciences must be completed within 10 years prior to enrollment; elective credit only awarded for courses taken more than 10 years prior to enrollment.

Nursing Course Requirements for the Pathway

Nursing 102 (or equivalent course in human development throughout the life span)	3
Nursing 320	8
Nursing 330	8
Nursing 420	8
Nursing 430	8
Nursing 491	2
Nursing 492	2
Credit by Exam up to	18
	54
Electives	17
Total	120

CLEP credit may be applied to general degree requirements and/or electives.

MASTER OF SCIENCE IN NURSING

The program leading to the degree of master of science in nursing is designed to provide nurses with opportunities for the continuing development of professional identity, the establishment of collaborative roles with other professionals and the utilization of the inquiry sciences and advanced knowledge as a basis for improving nursing practice. The program provides opportunities for specialization in clinical areas of nursing practice such as adult health nursing, parent-child nursing, community nursing and mental health nursing as well as participation in a highly individualized functional minor in nursing administration, teaching or as a clinical specialist.

The program of study will focus on the following:

1. Specialization in a clinical area such as adult health nursing, parent-child nursing, community health nursing, mental health nursing with the emphasis on advanced nursing theory and clinical practice;
2. Preparation for teaching, administration and clinical practice, including emphasis on leadership roles in nursing in relation to the health forces and the social systems in which nursing is practiced;

3. Analysis of governmental policies related to societal and health problems and health care delivery;
4. Utilization of nursing research and theory as a basis for nursing knowledge and practice and completion of a thesis;
5. Provision of the opportunity for student goal attainment based on individual interests in developing advanced professional competencies.

Degree Requirements. The master of science in nursing degree program requires completion of 42 semester hours of graduate credit including 36 hours in the nursing major which are open to graduate students only. Requirements for the program may be completed in three semesters and one summer session of full-time study or spread over a longer period of part-time study.

Students are expected to achieve a commendable or satisfactory grade (*A* or *B*) in all course work attempted for graduate credit. An accumulation of three marginal *C* grades will result in termination of the student's enrollment in the graduate program. A grade of *U* on any course will result in termination of enrollment.

In addition to the course work, each student must prepare and present a thesis acceptable to the student's advisory committee. A comprehensive examination is required for completion of the program.

At least 36 hours of graduate credit must be taken in residence. At the time of admission, up to six semester hours of graduate transfer credit may be accepted from another accredited institution upon approval of the student's adviser and the dean of the College of Nursing. Courses accepted as transfer credit are subject to the same time limitation as courses taken in residence.

Course Requirements. Each student must complete a minimum of 42 semester hours of graduate credit as specified below:

The Nursing Component (36 hours). The nursing component represents the major portion of requirements for the master's degree and includes four areas of study: core courses, area of specialization courses, research and thesis courses and functional area courses.

Core Area of Study (12 hours). The core courses provide an introduction to nursing theory, concept analysis, in-depth study of contemporary health issues and the analysis of societal forces and systems related to the practice of nursing. Required courses are: NUR 601, 605, 610 and 615.

Specialization Area of Study (Six hours). The specialization courses emphasize the utilization of theoretical bases for nursing practice. The area of specialization will prepare the student for activities in client care, consultation, community activities, and planning policies and change. Required courses by area of specialization are: Adult Health Nursing: NUR 620 and 625; Mental Health Nursing; NUR 630 and 635; Parent and Child Health Nursing: NUR 640 and 645; Community Health Nursing: NUR 650 and 655.

Functional Area of Study (Nine hours). The functional area of study focuses primarily on the development of role preparation in the teaching of nursing and the delivery of health services. Required courses by functional area are: Education: CAI 620 and HDL 671A and 673; Administration: MGT 661, 662 and 690; Clinical Specialist: BIO 375 and NUR 665.

Research and Thesis Component (Nine hours). The thesis demonstrates the capacity for research, originality of thought and facility in organizing data. Required courses are: NUR 660, 661 and 662.

The Relevant Component (Six to nine hours). The relevant component includes cognate courses in nursing, biological, behavioral, social and physical sciences. Elective offerings are selected from a variety of courses by student and faculty adviser to support the program of study.

COURSE DESCRIPTIONS

(Curriculum Implemented Fall 1980)

Courses for Undergraduates

NUR 102. Ecology of Man. (3) The focus of the course is directed toward understanding the relationship of selected environmental and social factors to man's growth and development and the meaning of health and illness to the individual, his family and the community. Health problems are explored along with a wide variety of facilities society provides for meeting health needs and solving health problems. Emphasis is placed upon the individual's growth and development throughout the life-cycle.

NUR 305. Nursing Process I. (6) Nursing Process I is one of the introductory courses for the nursing major. Nursing process methodology is the first priority in learning nursing practice. Recognizing that the nursing process is the scientific base for nursing practice, it is studied using a systematic approach. Each step provides the foundation for the methods and concepts which follow. Ambulatory care settings are used for clinical practice, focusing on health assessment of individuals of all ages.

NUR 306. Nursing Process 2. (8) Concepts introduced in Level I are reinforced. Knowledge, skills and competencies necessary to implement the nursing process are synthesized to culminate in therapeutic nursing behaviors, while caring for clients of all ages in altered states of health. In-patient settings are used for clinical practice.

NUR 307. Nursing Roles I. (3) Nursing Roles I is an examination of the unique roles and functions of professional nursing. Basic components are nursing theory, research process and legal-ethical aspects. Special emphasis is given to the historical influences on the development of the present health care system. Discussion of current issues provides an opportunity to begin accepting responsibility for own learning and professional growth.

NUR 308. Nursing Roles 2. (2) This course focuses on the implementation of the unique roles and functions of professional nursing within the health care system. The student utilizes collaboration, consultation and coordination when interacting with members of the health care team. Theories of management, change and teaching-learning are introduced. The health care system is explored in relation to the impact of illness.

NUR 309. Communication Process I. (2) The major purpose of this course is to facilitate the participant's awareness of one's own communication patterns and those factors which influence sending and receiving messages. Learning experiences consist of role plays, simulation games, videotape critiques and values clarification exercises. Content includes an introduction to communication and group theories necessary for therapeutic relationships.

NUR 310. Communication Process 2. (2) This course is designed to assist the student in developing skills in assessing mental health status of clients in general nursing practice. Building on theoretical concepts from sociology and psychology, emphasis is placed on internal and external factors which may influence the client's ability to adapt to changing health status. Content is directed toward the use of the nurse-client relationship and crisis theory in intervention.

NUR 311. Adaptive Process I. (3) This course provides a foundation for studying the concept of health. Focus is on the individual as a holistic, open system, interdependent upon others in the social system. Normal adaptive processes are explored in relation to predictive, maturational crises. Assessment of individual health status, health behavior, and internal and external influences on health throughout the life cycle are studied. Each student will select a family to follow throughout the nursing major.

NUR 312. Adaptive Process 2. (2) The study of adaptive processes is extended to include problems related to situational crises of all ages. Basic pathophysiology and effects of altered health states on the individual and family are studied.

NUR 405. Nursing Process 3. (6) Concepts introduced in Levels I and II are reinforced and expanded. The nursing process is implemented with individuals, families and communities experiencing multiple, complex health problems. The goals of the nursing process are amplified using the expanse of knowledge which has been accumulated. Acute, long term and other community settings are used for clinical practice.

NUR 406. Nursing Process 4. (6) Concepts introduced in Levels I, II and III are reinforced and expanded. Nursing Process 4 provides an opportunity to synthesize previously acquired knowledge in selected practice settings.

NUR 407. Nursing Roles 3. (2) This course focuses on the utilization of management theory and teaching-learning theory in client-care situations. Incorporation of knowledge of the socio-political processes into professional behavior are major components of the course. The student will analyze the characteristics of the health care system in relation to the health status of clients. The student will develop a nursing research proposal.

NUR 408. Nursing Roles 4. (2) This course allows for synthesis of the previously learned nursing roles and theories and provides an experiential base for practice. The student has the opportunity to evaluate health care issues and become involved in the development of health policy. The student will also evaluate his/her impact on the health status of a selected client group.

NUR 409. Communication Process 3. (2) This course is a continuation of Communication Process 2. The student utilizes nurse-client relationship in intervening with clients who have problematic behavior patterns. Content focuses on various mental health disorders as well as individual, group and family therapies.

NUR 410. Communication Process 4. (2) The course is designed to assist the student in synthesizing the use of communication skills in a variety of health care situations. Emphasis is placed upon communication skills for the nurse in the leadership position, both in the nursing profession and as a member of the community.

NUR 411. Adaptive Process 3. (2) The study of adaptive processes is extended to include multiple, complex problems related to situational crises affecting clients of all ages. Pathophysiology and effects of altered states of health on individuals, families, the community and the health care system are studied.

NUR 412. Adaptive Process 4. (2) Concepts related to health are expanded to include changing social needs, values, health problems and issues. The student is expected to synthesize knowledge of adaptive processes through nursing management of clients at varying points on the health-illness continuum. Each student will evaluate his/her impact on the health status of the family followed since Level I.

NUR 490. Topics in Nursing. (3) Prerequisite: Consent of the college. Topics to be chosen from the specialties of nursing.

NUR 491. Research in Nursing I. (2) Prerequisites: Completion of all required courses below the 400 level. Introduction to research in nursing. The student reviews and critiques studies from nursing and related areas and develops a preliminary proposal.

NUR 492. Research in Nursing II. (2) Prerequisite: NUR 491. This course provides opportunity for the student to study a nursing problem using the research method.

Curriculum in Effect Prior to Fall 1980

NUR 102. Ecology of Man. (3) Previously described.

NUR 201. Fundamentals of Nursing I. (4)) Prerequisites; NUR 102, CHE 103 and 104, BIO 101, SOC 151 or PSY 101, and sophomore standing. Corequisites: BIO 203 or 205 and SOC or ANT elective. The focus of this course is the nursing process, with emphasis on the assessment of the individual and his family to determine their physical and psychosocial needs. Basic principles and concepts essential for nursing care are introduced. Study of the well individual enhances the students' understanding of human development, behavior and aging.

NUR 202. Fundamentals of Nursing II. (4) Prerequisites: NUR 201, 203. Corequisites: BIO 203 or 205, SOC or ANT elective. This course focuses on the planning and implementation phases of the nursing process in providing family-centered care. Students increase their knowledge and use of therapeutic techniques in assisting well and ill individuals.

NUR 203. Nursing Concepts Seminar I. (2) Corequisite: NUR 201. An examination of selected basic concepts in contemporary nursing including: professional nursing roles; roles of the family health nurse in a variety of health care settings; the concept of health; and principles of communication theory and interviewing. Maintenance of health in the individual constitutes the primary framework within which these concepts are studied. Special emphasis is placed upon self-awareness as a basis for effective one-to-one interaction.

NUR 204. Nursing Concepts Seminar II. (2) Corequisite: NUR 202. A continuation of NUR 203 in which additional basic concepts in contemporary nursing are examined, including: health care delivery systems; application of change theory to health care systems; utilization of the research process; and characteristics of the various levels of nursing education and nursing practice. Basic components of group theory and process are explored within the seminar setting.

NUR 205. Nutrition in Health and Disease. (3) Prerequisites: NUR 201 for nursing majors; two semesters of biology, chemistry and/or physics for non-nursing majors; or permission of the instructor. A practical understanding of the ways the body handles food from birth through the life cycle to obtain and utilize nutrients for the metabolic needs of health maintenance, growth and added stresses of pregnancy and disease. Normal nutrition will be the main focus. Social and psychological gatekeepers of good nutrition that include childhood eating habits, fads, cultural values, food processing and merchandising methods will be examined.

NUR 301-A. Nursing of the Adult Family Member I. (4) Prerequisites: Junior standing; NUR 102, 201, 202, 203, 204; completion of sophomore pre- and corequisites. Corequisites: NUR 302 or NUR 303, PSY 307. This course emphasizes the response of the adult and his family to illness, presenting content in a problem oriented manner. The course focuses on utilization of the nursing process in restoring the adult to an optimal level of wellness, patho-physiology and medical-surgical therapy serving as a basis for planning and implementing appropriate nursing care.

NUR 301-B. Nursing of the Adult Family Member II. (4) A continuation of NUR 301-A.

NUR 302. Nursing of the Childbearing Family. (4) Prerequisites: Junior standing, NUR 201, 202, 203, 204; completion of sophomore pre- and corequisites. Corequisites: NUR 301-A or 301-B, PSY 307. This course is designed to enable the family health nurse student to utilize the nursing process in provision of care to the childbearing family. The focus is on growth and development of each family member along the wellness-illness continuum during this period.

NUR 303. Nursing of the Childrearing Family. (4) Prerequisites: Junior standing; NUR 201, 202, 203, 204; completion of sophomore pre- and corequisites. Corequisites: NUR 301-A or 301-B, PSY 307. This course enables the student to understand the basic concepts of patient care with emphasis on the childbearing family from infancy through the adoles-

cent period. The student utilizes bio-psychosocial principles in applying the nursing process as he/she provides total nursing care for the child and his/her family along the wellness-illness continuum.

NUR 350. Clinical Pathophysiology. (3) Prerequisites: Chemistry 103, 104 (or equivalent); Biology 203, 205 (or equivalent), and all 200 level nursing courses. The course focuses on those internal and external factors which cause loss of system integrity, building on the concepts of stress, adaptation, maladaptation and compensation. Study and application of adaptive mechanisms which serve to maintain relative system integrity within the individual are integrated throughout the course. In addition, alterations in regulatory mechanisms which manifest themselves as pathophysiologic processes and which constitute major health problems are examined in detail.

NUR 401. Mental Health Nursing. (5) Prerequisites: Completion of all required courses below the 400 level. This course is designed to assist the student in exploring and understanding the dynamics of interpersonal relationships as adaptive and maladaptive processes in individuals, families and groups. Emphasis is placed upon the development of awareness of personal behavior and its effect on the client relationship. Building on classical and current theory in psychology, sociology and physiology, content emphasis is on assisting the student in identifying, adapting, implementing and evaluating theoretical constructs which are most appropriate to 1) the learner's potential and 2) the client's need. The student works in hospital and community settings as he/she applies the nursing process to selected client relationships.

NUR 402. Nursing of the Adult Family Member III. (5) Prerequisites: Completion of all required courses below the 400 level. This course is designed to further the student's knowledge of and skill in providing care for adult family members who are acutely or critically ill. Emphasis is placed on the pathophysiological alterations in cardiovascular respiratory functions and the impact which these changes have on an individual and his family. Opportunities are provided for independent decision making in applying the nursing process in such specialized areas as acute coronary care, post-operative intensive care and emergency room.

NUR 403. Community Health Nursing. (5) Prerequisites: Completion of all required courses below the 400 level. This course is designed to assist the student in utilizing communication and interpersonal skills in family-centered and community settings; understanding the nursing process in promotion of high-level wellness and health maintenance for families and communities; understanding professional responsibility as a health team member in an interdisciplinary approach to family and community health, utilizing knowledge of community health theory in evaluating the health care for individuals, families and communities; and relating community health and community health nursing to current practice and trends in health care.

NUR 404. Management of Patient Care. (4) Prerequisites: Completion of all required courses below the 400 level. The focus of this course is on the assessment of an existing health care unit in relation to industrial and professional models of practice and management, the assumption of responsibility for health care within the framework of the unit; and the determination of ways to improve care and plan for change.

NUR 490. Topics in Nursing. (3) Previously described.

NUR 491. Research in Nursing I. (2) Previously described.

NUR 492. Research in Nursing II. (2) Previously described.

Pathway Option for Registered Nurses

NUR 320. Trends and Issues in Nursing Practice. (8) Prerequisite: Completion of required general degree courses and related social and physical sciences and permission of the

College of Nursing. Co-requisite or prerequisite: NUR 102. Examines those historical, demographic, social and educational changes influencing the professional status of nursing, analysis of nursing roles including the legal, ethical and theoretical perspectives of these roles. Skills necessary to implement the nursing process are learned through seminar, clinical practice and self-directed study.

NUR 330. Nursing Process — Health Assessment. (8) Prerequisite: Satisfactory completion of NUR 320. The focus of this course is on health and factors that influence health. Nursing assessment skills including physical and psychosocial assessment are utilized to determine the health status of selected individuals. Students define specific learning objectives, select the setting for clinical application and negotiate with a preceptor and the instructors for a learning contract.

NUR 420. Nursing Process in Family and Community Health Settings. (8) Prerequisite: NUR 330. Knowledge of crisis intervention, community health theory, health care systems and client nursing regimens is the focus of this course. Independent study, seminars and clinical practice in the community are utilized.

NUR 430. Leadership Roles in Nursing. (8) Prerequisite: NUR 420. The focus of this course is to develop skills in critical thinking in evaluating organizations and systems and their influence on nursing practice. The student applies scientific problem solving method and change theory when appropriate leadership styles are identified and assessed. The concept of learning as a lifelong process is reinforced. Seminars, independent study and clinical practice are utilized.

NUR 490. Topics in Nursing. (3) Prerequisites: Consent of the College. Topics to be chosen from the specialties of nursing.

NUR 491. Research in Nursing I. (2) Prerequisites: Completion of all required courses below the 400 level. Introduction to research in nursing. The student reviews and critiques studies from nursing and related areas and develops a preliminary proposal.

NUR 492. Research in Nursing II. (2) Prerequisite: NUR 491. This course provides opportunity for the student to study a nursing problem using the research method.

Courses for Graduate Students Only

NUR 601. Nursing Theory I. (3G) Analysis of various theories underlying nursing practice with emphasis on assisting the learner to utilize theory analysis as a basis for developing nursing practice, education or research.

NUR 605. Nursing Theory II. (3G) Prerequisite: NUR 601. Analysis and formulation of theory relevant to nursing knowledge and nursing practice with emphasis on application of various nursing theories to nursing practice and health care delivery.

NUR 610. Perspectives in Nursing. (3G) Analysis of the societal forces, issues and trends having an impact on nursing and the health fields including a critical examination of strategies which accelerate or impede the change process.

NUR 615. Health Planning in the Health Care System. (3G) Contributions of the nursing profession in health care planning including analysis of the implications of federal, state and local legislation on health and nursing and consideration of roles and participation of nursing in political and organizational decisions involving health care.

NUR 620. Adult Health Nursing I. (3G) Examination of scientific data relevant to adult health and illness with emphasis on the utilization of multi-disciplinary theory in the assessment and implementation of nursing practice. Autonomous nurse behavior in response to health-illness events is stressed.

NUR 625. Adult Health Nursing II. (3G) Prerequisite: NUR 620. Continuation of NUR 620.

NUR 630. Mental Health Nursing I. (3G) Examination and application of the therapeutic process of mental health nursing with emphasis on application of theories from psychiatric, behavioral, cultural sciences and nursing to select clinical experiences. Theoretical seminar, clinical conference, clinical experience and supervision provide opportunities for development of the roles of the nurse as a group leader and therapist.

NUR 635. Mental Health Nursing II. (3G) Prerequisite: NUR 630. Continuation of NUR 630.

NUR 640. Parent and Child Health Nursing I. (3G) Assessment and management of clients of childbearing and childrearing families focusing on the theoretical concepts of competency in parenting, family development, nurturing and human sexuality with emphasis on the development and behavior of children as biopsychosocial beings in the context of the illness-wellness continuum.

NUR 645. Parent and Child Health Nursing II. (3G) Prerequisite: NUR 640. Continuation of NUR 640.

NUR 650. Community Health Nursing I. (3G) Epidemiological theory and community relations as the major emphasis in planning and promotion of comprehensive health care of clients, families and community in clinical settings.

NUR 655. Community Health Nursing II. (3G) Prerequisite: NUR 650. Continuation of NUR 650.

NUR 660. Research Process in Nursing. (3G) Application of inquiry methods to nursing problems with emphasis on identifying systematic observation and critical analysis of research methods applicable to nursing problems. Submission of an approved researchable problem in nursing.

NUR 661. Research Seminar. (3G) Prerequisite: NUR 660. Application of the research process in the design, conduction, analysis and writing of nursing research. A written report and submission of report for publication is expected of the student.

NUR 662. Thesis. (3G) Prerequisite: NUR 661. Production of a piece of nursing research which demonstrates contribution to professional knowledge by systematic investigation.

NUR 665. Health Assessment. (3-5G) Prerequisite: BIO 375. Development of additional proficiency in the basics of organized history taking and systematic physical examinations with emphasis on the recognition and identification of normal physical findings and including development of skills in recognition of grossly abnormal findings and relation of these findings to specific physiologic or pathologic diagnoses.

NUR 690. Selected Topics in Nursing. (3G) Topics to be chosen from the specialties of nursing. May be repeated for credit as topics vary.

Special Programs

Afro-American and African Studies

The Afro-American and African Studies program is designed to enable all University students to come to an awareness of Black people, who they are, where they come from, where they are going and why. It is open to all undergraduate students either as a major leading to the B.A. degree or as elective courses complimentary to their major program.

American Studies

The American Studies emphasis is open to all undergraduate students. It is intended to allow students to focus strongly on various aspects of the culture of the United States while also gaining further variety from other facets of the curriculum.

Charlotte Area Educational Consortium

Full-time undergraduate students may enroll in courses *not offered at UNCC* which are offered at other participating institutions in the Charlotte Area Educational Consortium without paying additional tuition and fees. The courses appear on the student's UNCC transcript and are computed in his/her quality point average. Members of the Consortium are: Barber-Scotia College, Belmont Abbey College, Central Piedmont Community College, Davidson College, Gaston College, Johnson C. Smith University, Queens College, Sacred Heart College, UNCC, Wingate College and Winthrop College. (See page 62 of this catalog for registration procedures.)

English Language Training Institute

The English Language Training (ELTI) is an intensive (20 hours per week) language program for university bound foreign students who lack adequate English proficiency. The curriculum is designed to provide a systematic progression in grammar, composition, reading and pronunciation. Class number is kept low and classes meet four days a week for 15 weeks.

The ELTI also offers a program, the Advanced 50, for exceptionally able language students. The students who qualify for the Advanced 50 are permitted to take a maximum of six academic credits with the advanced-level English classes. For additional information, contact the Center for International Studies.

Exchange Programs

Students may complete a semester or academic year of study toward their baccalaureate degree at selected colleges and universities in the United States and foreign countries through the University's participation in the National Student Exchange Program and the International Student Exchange Program.

National Student Exchange Program. The National Student Exchange Program offers a new kind of educational opportunity for sophomores and juniors at UNCC. Students can exchange for up to a year of study at one of over 55 colleges and universities throughout the United States through simplified admission processes, assurance of transferability and minimum cost. In this

way, students are able to take advantage of areas of academic specialization and strength at other universities while exploring unique cultural, geographical and social experiences normally not available to them. Through these experiences students begin to understand, often for the first time, that vastly different learning styles, lifestyles and values may develop from varied academic and geographical settings.

For more information, contact the National Student Exchange Coordinator in the Bonnie E. Cone University Center.

International Student Exchange Program. UNCC is one of approximately 80 U.S. institutions of higher education which are members of the International Student Exchange Program. This program permits the UNCC student to exchange with students from Africa, Asia, Australia, Canada, Europe and Latin America. The UNCC students pay their regular tuition, fees, room and board at UNCC and exchange places for the year with students from institutions outside the United States who have similarly covered their cost of tuition, fees, room and board. The student is registered at the foreign institution, taking the same courses, having the same assignments and participating in the same activities as all other students at that institution. This program permits the student to be exposed daily to a different set of cultural values, to new ideas and new world views. ISEP exchanges are small in scale, with only a few students going to each foreign institution. Information regarding the ISEP exchange may be obtained from the Center for International Studies.

Experiential Learning Programs

Opportunities are available for both undergraduate and graduate students to receive course and/or degree credit for faculty supervised experiences in public and private agencies within the community. These opportunities are offered through various types of experiential learning programs including clinicals, cooperative education, internships, practica, service-learning internships and the Venture program which is described on page 350. Course descriptions pertaining to these programs are included in the courses of study of the offering department or college.

Clinicals. Experiential learning or clinical experiences are an integral part of many of the courses taught in the College of Nursing as well as the College of Human Development and Learning. They are designed to provide students with opportunities to develop professional competencies and put theory into practice as they progress through their program of study.

Cooperative Education. Cooperative Education is a year-around study-work plan of education in which students alternate periods of attendance at the University with periods of emloyment in jobs related to their major interest. This type of program has been used successfully for many years by colleges and universities throughout the United States. The program is designed to provide practical experience under conditions that the University cannot duplicate.

The work assignments are usually for a 40-hour week for a semester and are paid by the employer at a rate appropriate to the student's development. Some students find that they can meet most or all of their college costs with income from their co-op assignments. The work assignments are monitored by both the employer and a faculty adviser to assure that they relate to and progress as the student's education progresses. Students usually stay with the same employer but this is not necessary. Many students find the co-op experience an aid in obtaining their first job — very often with the company or agency with which they had a co-op assignment. Academic credit may or may not be granted for co-op work. While working, the CO-OP student is enrolled in the University, considered a full-time student, and eligible for student activities.

The CO-OP office works with the faculty of the participating colleges to administer the program. Academic requirements and supervision are provided by the student's college and these vary with the college. The CO-OP office works with employers and approved CO-OP

students to find suitable work opportunities. CO-OP students are required to have better grade averages than the University requires for all students.

The College of Engineering has an established cooperative education program. Additional colleges are considering establishment of CO-OP programs. For further information, inquiries can be made of the various colleges or the CO-OP Office.

Internships. Students may receive academic credit for semester-long, supervised work experiences in public or private community organizations. The amount of credit is determined by the nature of the internship assignment and the number of hours worked each week.

Practica. Psychology majors have opportunities to receive academic credit for working in practical settings related to psychology. Each practicum is conducted under the supervision of a faculty member and an agency representative.

Service-Learning Internships. Students may participate in internship experiences designed specifically to serve the needs of the community while providing learning opportunities for the students.

The *Internship Program in Community Education and Service* is designed as an area-wide program with academic credit. The overall objectives of the service-learning program are:

— To identify relationships between the student's academic program and the problems and prospects of modern urban communities.
— To enable students to become involved in solving problems of the urban community.
— To provide manpower for governmental and service agencies in local metropolitan communities.
— To encourage youth to consider careers and/or citizen leadership in urban administration and service.
— To establish a closer relationship between institutions of higher education and the Charlotte area communities by making the resources of the University more accessible to the community and by providing a basis for keeping curriculum, teaching and research relevant to the needs of the community and society.

Interns will receive three or six semester hours of academic credit, with grading on a *Pass/No Credit* basis, for their completion of the Program in Community Education and Service by enrolling in SBS 480 (Internship). (See Social and Behavioral Sciences course descriptions.) Additional information about this program can be obtained from the Office of the Dean of the College of Arts and Sciences.

Honors Program

The purpose of honors programs at the University of North Carolina at Charlotte is to identify the creative, imaginative, and/or exceptional student, and to encourage and recognize the development of this student's potential.

Honors work emphasizes independent study. Honors work may be undertaken as early as the first semester of the freshman year. To qualify for graduation with honors recognition, the student must be admitted formally to honors candidacy by the University Honors Council at least two semesters before graduation.

To qualify for graduation with honors recognition, a student will be required:

(1) to have at least a 3.50 grade point average for all honors courses in that discipline for which a grade was assigned;
(2) to receive the grade of *A* for at least three hours of honors thesis research in that discipline;
(3) to present an acceptable honors thesis or its equivalent to his/her Departmental Honors Committee; and
(4) to receive the recommendation of his/her departmental honors committee; and
(5) to meet any additional requirements specified by his/her department.

Inter-Institutional Registration

Full-time undergraduate and graduate students may enroll in courses *not offered at UNCC* which are offered at other participating institutions without paying additional tuition and fees. The courses appear on the student's UNCC transcript and are computed in his/her quality point average. Members of the inter-institutional registration program are: University of North Carolina at Greensboro, North Carolina State University, University of North Carolina at Chapel Hill and Duke University. (See page 62 of this catalog for registration procedures.)

International Studies

Concentration in International Studies. The Center for International Studies, by offering a concentration, allows students to pursue an interdisciplinary and comparative study of foreign cultures and societies while they fulfill the academic requirements for a major in one of the approved University degree programs.

A concentration in international studies permits a wide variety of choice in subject matter and encourages course work in modern foreign languages, humanities, social sciences and international economics and business. Carefully selected programs should be designed to provide students with cultural and intellectual enrichment for more rewarding lives in an increasingly interdependent world. Such programs should also be of particular value to those with career objectives in government, business, trade, finance, law, health and environmental programs, international agencies such as the United Nations, private religious and humanitarian service organizations, journalism, teaching, research and military service.

Students seeking a concentration in international studies must fulfill general University degree requirements and the requirements for a selected major. In addition, students are expected to complete a minimum of eight courses in at least three departments outside their major.

A program of study fulfilling this option may be viewed from a variety of perspectives: topically, e.g., world population, poverty, violence, and war and peace futures; or geographically, e.g., Soviet Union, Eastern Europe, Africa, Asia and Latin America; or chronologically, e.g., ancient, medieval and modern. Students majoring in the following disciplines may earn a concentration in international studies.

Accounting
Anthropology
Architecture
Biology
Business Administration
Chemistry
Criminal Justice
Earth Sciences
Economics
Engineering Analysis and Design
Engineering Science, Mechanics and Materials
Engineering Technology
English
French
Geography
German
History
Human Development and Learning
Mathematics
Nursing
Philosophy
Physics
Political Science
Psychology
Religious Studies
Spanish
Urban and Environmental Engineering

The International Studies Program also coordinates a variety of activities, events, travel options and other opportunities of international scope in order that students may participate in a broad range of experience.

Students seeking certification in international studies shall plan programs with department advisers and the director of International Studies. The director will assist in the planning of a concentration and review and approve all certification in International Studies. Transcripts of students satisfactorily completing their program will bear the statement, "Concentration in International Studies." To meet the requirements for the concentration, a student also must have at least a 2.0 average in the courses offered for it.

Lists of courses approved for credit toward a concentration in International Studies are available in the departments listed above or from the program director.

Travel and Study Abroad. The Center for International Studies offers UNCC students the opportunity to travel and study abroad either for a year, semester or summer term. Programs during the summer are arranged in a variety of countries each year. A student should contact the Center for International Studies no later than March 30 to be considered for a summer travel/study program.

Students may study for a semester or an acadmic year in Copenhagen, Denmark, through the Denmark International Student Committee Program. Approximately 35 courses are offered in liberal arts with specialization in Architecture, Social Welfare and Business Administration. Students of sophomore or junior standing are preferred and grade point average of 2.5 is required. Although no scholarships are available for this program, many students who are receiving financial aid during a regular academic year will be eligible to continue receiving aid while participating in this program. Students may study for the fall semester in India. The program specializes in the humanities. Summer Study Travel Programs are offered each year and students have a wide variety from which to choose.

The students desiring information on travel/study should contact the Center for International Studies.

Campus Programming. A series of annual and one-time events is sponsored independently and in cooperation with other departments and agencies. They include

1. Annual International Festival
2. International Film Festival
3. International Club
4. International Student Vacation/Study Programs and Summer Institutes
5. A variety of international programs relevant to international student concerns. Examples include lectures, Model United Nations, and food day celebrations.

ROTC Programs

Air Force ROTC

Students who desire the opportunity to serve as commissioned officers in the Air Force may elect to participate in the Air Force Reserve Officers' Training Corps (ROTC) Program as part of their academic program.

This program is divided into two phases, the two-year General Military Course (GMC) for freshmen and sophomores, and the two-year Professional Officer Course (POC) for juniors and seniors. Selection for the POC takes place during the sophomore year for cadets who have demonstrated sound academic and leadership qualities. Qualified senior students may participate in the Flight Instruction Program (FIP) during their last year of college. There is no military commitment for students who take only the two-year GMC.

All students in the last two years of AFROTC receive a monthly tax free allowance of $100. ROTC textbooks and uniforms are provided at no cost. Students attending summer field training receive travel payment and a stipend. Air Force ROTC also offers two, three and four year scholarships which are awarded on a competitive basis. These scholarships pay full tui-

tion, fees, books and a monthly tax free allowance of $100. High school seniors should consult their high school counselors or HQ AFROTC, Maxwell AFB, Alabama for application forms.

Graduate students are eligible to participate in AFROTC and to compete for scholarships.

For more information, see pages 328-330.

Army ROTC

Students at the University of North Carolina at Charlotte may elect to participate in the Army Reserve Officers' Training Corps (ROTC) Program as a part of their academic program. Students successfully completing the military science curriculum will be commissioned second lieutenants in the Regular Army, Army Reserve or National Guard.

Army ROTC is a four-year program consisting of the Basic Course (freshman and sophomore years) and the Advanced Course (junior and senior years). No military commitment is incurred from participation in the Basic Course.

Eligibility for admission into the Advanced Course is on the basis of demonstrated officer potential and a physical examination. Honorably discharged veterans and students with a JROTC background may be eligible for placement into the Advanced Course provided they are otherwise fully qualified. Transfer students from two-year colleges may also qualify for direct entry into the Advanced Course by participation in summer training. Advanced course students attend a paid six-week summer camp prior to commissioning.

All students enrolled in the Advanced Course receive a tax-free subsistence allowance of $100 per month. One, two and three-year scholarships are awarded on a competitive basis. Scholarships pay the full cost of tuition, textbooks and lab fees as well as the monthly subsistence allowance. High school students should consult their high school counselor about application forms.

For more information, see pages 331-332.

Venture Program

Venture recognizes the natural environment as a means for developing initiative, creativity, physical health, and a sensitivity to the environment and other people. The Venture program is designed to facilitate individual growth through physical challenge, group interaction and feedback and personal reflection. It offers a variety of non-credit courses, workshops and seminars that utilize outdoor settings to provide opportunities for active, experiential learning.

Venture also offers courses each semester and during the summer sessions for academic credit. Outdoor, natural environments are utilized to present a series of progressively difficult problems or challenges. While course settings and activities may vary by season and safety considerations, the basic format of each course is similar. Enrollment is limited to ensure full participation and to ease our environmental impact. Through active experience, group debriefings and personal reflections, students are encouraged to examine lifestyles and values while developing a greater sensitivity to the needs of others. See Social and Behavioral Sciences course descriptions for description of SBS 399. (Venture: A Wilderness Experience).

Women's Studies

The Women's Studies Program at UNCC is designed to meet the needs of women and men for an educational program which recognizes the equal value of women's experience and contribution to humanity. It approaches education from an interdisciplinary, multi-cultural perspective. Since the goals of UNCC women are often equally academic, professional and personal, Women's Studies offers a variety of programs and assists students to identify course

offerings throughout the University which are relevant for Women's Studies, e.g., HUM 303, HIS 389, SOC 461, SOC 463 and PSC 323.

Preparation for Professional Schools

Students may begin preparation at the University of North Carolina at Charlotte for a number of professional careers. Depending upon the professional school's requirements, the student may wish to take a degree at the University of North Carolina at Charlotte or to transfer after one, two or three years.

Preparation for the following programs is offered: chemical engineering, dentistry, forest resources, journalism, law, medical technology, medicine, optometry, pharmacy, social work and veterinary medicine.

The student who plans to enter a professional school is advised to plan his/her program so that general requirements for the bachelor of arts or bachelor of science degree are met in addition to the requirements for the professional program being considered. The student planning to attend a professional school should inform his/her adviser of his/her plans. The student should become familiar with the requirements of the school which he/she plans to attend.

Chemical Engineering

Students seeking a program in chemical engineering should consult the Department of Chemistry or the Department of Engineering Science, Mechanics and Materials for advice concerning available options. However, those students desiring to obtain the bachelor of science in chemical engineering degree may do so by transferring to North Carolina State University after spending two years at the University of North Carolina at Charlotte. To be eligible for such transfer, the student must meet the admissions requirements for transfer at North Carolina State University. Normally, after transfer an additional two to two and one-half years will be required for the degree.

The following courses are ones which most closely resemble courses suggested for chemical engineering students at North Carolina State University.

First Year

Chemistry 101, 101L, 102, 102L
Engineering 101 BC, 102 ABC
English 101 and 102
Mathematics 105, 141, 142
Physical Education (two semesters)
*Social Science and Humanities (two semesters)

Second Year

Chemistry 231, 231L, 232, 232L
Engineering Analysis & Design 268
Mathematics 241, 271
Physical Education (two semesters)
Physics 221, 231, 251, 252
*Social Science and Humanities (one semester)

The above represents a joint arrangement worked out by the Department of Chemical Engineering at North Carolina State University with the Department of Chemistry and the College of Engineering at the University of North Carolina at Charlotte. Students may enroll in either the College of Engineering or the College of Arts and Sciences to pursue such a program.

*A one-semester course in each of the following areas is required: history, economics, English literature.

Dentistry and Medicine

The composite requirements for entrance to most medical and dental schools in North Carolina, South Carolina, Georgia, Tennessee and Virginia are as follows:

Biology ..... 8 hours
General Chemistry ..... 8 hours
Organic Chemistry ..... 8 hours
Quantitative Analysis ..... 4 hours
(Required by half the schools surveyed)
Physics ..... 8 hours
English ..... 6 hours
Foreign Language ..... 9-12 hours
(North and South Carolina only)

Pre-Med Committee. The UNCC Pre-Med Committee consists of faculty members from throughout the University and serves as the main advisory and recommending body for UNCC students seeking entrance to health professional careers and education. Students working toward entrance in health professional schools are advised to work closely with this committee throughout their study at UNCC. Contact the Office of Academic Affairs for the name of the committee chairperson.

Forest Resources

At UNCC students may take the first two years of a program leading to a bachelor's degree in forestry or recreation from North Carolina State University at Raleigh. To be eligible for transfer the student must meet the admissions requirements for transfer to North Carolina State University. It is suggested that pre-forestry students take Biology 121, 122, 161 and 361; Chemistry 101, 102; Economics 201, 202; English 101, 102; Mathematics 103, 122, 141, 142; Physics 101, 102; physical education — four hours; and social studies or humanities — six hours. Students enrolling in recreation and park administration may substitute Mathematics 120, 122 for 141, 142 and are not required to take physics.

Journalism

A number of institutions accept graduate students in journalism with the background of a liberal arts degree. Other institutions accept students transferring to an undergraduate program at the junior year with a liberal arts background.

Law

The University suggests that the student planning to enter law school have an understanding of the value of English literature and composition, American history, psychology, logic and ethics, political sciences, economics, government, accounting, mathematics, sociology, Latin and modern languages and criminal justice. Preparation should include comprehension and expression in words, critical understanding of human institutions and values and creative power in thinking. Thus, any of several majors with wisely selected electives might provide the broad educational background needed.

Medical Technology

The University, through affiliation with several schools of medical technology, offers programs leading to baccalaureate degrees in biology and chemistry, with training in medical technology. Students interested in this four-year program are advised to check the more detailed listing under the individual departments and to consult with the appropriate adviser in the Department of Biology or Chemistry.

Optometry

Schools of optometry require a minimum of two years undergraduate study similar to the following two-year program listed for pharmacy. Advising for students interested in pre-optometry preparation is available in the Department of Physics.

Pharmacy

Students planning to seek a bachelor of science in pharmacy degree may spend either one or two years at the University of North Carolina at Charlotte. One year is recommended for students transferring to a four-year pharmacy school; two years are recommended for students transferring to a three-year pharmacy school such as the University of North Carolina at Chapel Hill.

For the student planning to spend one year at the University of North Carolina at Charlotte, the following courses are required:

English	101, 102
Biology	101, 203, 203L
Mathematics	103, 103A, 141
Chemistry	101, 101L, 102, 102L

For the student planning to spend two years on the Charlotte campus, the following additional courses are required:

Chemistry	231, 231L, 232, 232L
Physics	101, 102
Biology	205, 205L
Economics	201
Physical Education	(two semesters of a sports related activity)
Social Science	(one semester)
Humanities	(one semester)
Mathematics Option:	Can be selected from one of the following: Mathematics 120, 122, 142, 221 or Computer Science 101.

The Pharmacy School at the University of North Carolina at Chapel Hill requires no additional foreign language than required for the general college.

Social Work

Students planning to attend a graduate school of social work are advised to pursue a course of study which involves substantial preparation in the social sciences and humanities. Whichever major is chosen, the student should select a variety of courses pertaining to human development as well as the social, cultural, political and economic contexts of living. The student should also take social science research and social statistics courses.

Completion of an undergraduate major or concentration in social work may enable the student to earn the MSW in less than the two years originally required.

Veterinary Medicine

Through careful planning with their academic advisers, it is possible for UNCC students to meet the requirements for admission to the School of Veterinary Medicine at North Carolina State University.

The following UNCC courses must be completed *by the time of application* to the School of Veterinary Medicine:

English, general	6 hours	Biology, BIO 121, 122	8 hours
Math, MAT 103, 120, 122	9 hours	Bio 331, Genetics	3 hours
Physics, general	8 hours	BIO 311,	
Chemistry, inorganic	8 hours	Microbiology	4 hours
organic	8 hours	BIO 345, Comparative	
biochemistry	3 hours	Anatomy	4 hours

Applicants must also have completed the following courses which are *not* available at UNCC:

Medical Terminology	2 hours
Animal and/or Poultry Science with at least one course in animal nutrition	7 hours

The above courses are available through transient study from North Carolina State University or North Carolina Agricultural and Technical University.

Benefactions

PROFESSORSHIPS

The *Barclays American Corporation Professorships in Business Administration* were established by the American Credit Foundation of North Carolina, Inc. The Foundation approved a statement of intent in January, 1967 to contribute $100,000 to be paid over a period of 10 years and to be used for the presentation of a salary supplement or supplements to a distinguished member or members of the faculty of the College of Business Administration, who will be known as *Barclays American Corporation Professors of Business Administration.*

The *Robert Lee Bailey Professorship in History* was UNCC's first professorship, established in December, 1965 by Mr. and Mrs. Sanford V. Davenport to honor and reward excellence in teaching by a gift in memory of her brother, Lieutenant Robert Lee Bailey of the 10th Armored Division of the U.S. Army, who was killed in Germany on March 22, 1945, near the end of the conflict in Europe. Born on April 21, 1914, in Concord, he attended Davidson College and before the war was associated with Broyhill Furniture Company.

The *Celanese Professor of Engineering* is a distinguished professorship in the College of Engineering, which has its salary supplemented by part of the income from the rental of a building donated by the Celanese Corporation and valued at more than $1 million.

The *Charles E. Cullen Professorship* was established in 1973 by the Charlotte Sales and Marketing Executives, Inc. to honor the late "Charlie" Cullen of Charlotte. The professorship consists of an endowment in the amount of $100,000 pledged by Charlotte Sales and Marketing Executives, Inc. The income from the endowment is to provide a salary supplement or supplements for a distinguished professor of marketing in the College of Business Administration.

The *Rush S. Dickson Professorships in Finance* were established in memory of the late Rush S. Dickson of Charlotte. The professorships are made possible through the generous gifts and pledges, totaling $100,000 by the Dickson Foundation of Mount Holly and the Rush S. Dickson Family Foundation of Charlotte. Mr. Dickson established both foundations. The net income from the gifts is used for the payment of a salary supplement or supplements to a distinguished member or members of the faculty of the College of Business Administration in the field of finance.

The *Frank Porter Graham Professorship in Black Studies* was established by Miss Alice Lindsay Tate in honor of the former president of the University of North Carolina, United States senator and United Nations mediator. The income from the professorship fund will be used as a salary supplement for a distinguished member or members of the faculty of the University of North Carolina at Charlotte.

The *Artie Sue Kerley Professorship in Nursing* was established in 1972 by Miss Artie Sue Kerley to provide a salary supplement for a distinguished member of the College of Nursing faculty.

The *Charles H. Stone Fund* was given by Mrs. Stone in memory of her husband, a pioneer in the chemical and dyestuff industry in the South. The grant is dedicated to perpetuating the memory of Mr. Stone and assuring the high quality of chemistry instruction at the University of North Carolina at Charlotte. The net income is used for the payment of a salary supplement to a distinguished member or members of the chemistry faculty, who are designated as "Charles H. Stone Professors of Chemistry." Before World War I, Mr. Stone was employed by a German chemical company, and later he formed his own company in Charlotte and operated it until 1937 when it was purchased by American Cyanamid Company. Mr. Stone remained active with the company until his retirement in 1947. He died October 20, 1963.

NCNB AWARDS

The generosity of the North Carolina National Bank has made possible the NCNB Awards established for the purpose of recognizing and honoring members of the faculty for distinguished service. The NCNB Awards intitially are used to reward excellence in teaching by members of the faculty or to honor faculty members for distinguished research and scholarly writing or devoted and sacrificial service to the University and to mankind.

SCHOLARSHIPS

UNCC offers a comprehensive undergraduate scholarship program made possible by the UNCC Foundation. For a listing of these scholarships, see pages 53-57. of this *Catalog* in the section on "Financial Aid."

University Regulations

Standards for Student Conduct

Students are expected to observe the requirements of the Code of Student Conduct, which is included in the *Student Handbook*. The policies and regulations referred to in the following paragraphs have special importance. Policy Statements referred to below are available for inspection in the Library's Reserve Reading Room and most UNCC administrative offices. Questions concerning these policies should be directed to the Office of the Dean of Students.

INTERFERENCE WITH CAMPUS OPERATION

The University of North Carolina at Charlotte honors the rights of groups and individuals to free discussion and expression, peaceful picketing and demonstration, petition and peaceable assembly. However, willful disruption of the educational process, destruction of property and interference with the rights of others cannot be tolerated. The University will deal with such disruption, and destruction, or interference promptly and effectively, but also fairly and impartially without regard to race, religion, sex, or political beliefs.

University Policy Statement #58 details UNCC policy and procedure in these matters.

ALCOHOLIC BEVERAGES

State law regulates the possession and use of alcoholic beverages. Excessive and/or inappropriate uses, as defined by state law, are punishable by criminal penalty. Also, because the University community presents a separate and special context in which an environment compatible with academic endeavors must be preserved, additional University regulation of the possession and use of alcoholic beverages on campus is necessary and proper.

The University of North Carolina at Charlotte has adopted Policy Statement #57, "Use and Consumption of Alcoholic Beverages." Questions concerning the Policy Statement should be directed to the Office of the Dean of Students.

DRUG ABUSE

The illicit and improper use of certain drugs (for example, cannabis, amphetamines, barbiturates, opiates and hallucinogenic drugs) is incompatible with personal welfare and the pursuit of academic excellence and will not be tolerated by the University. Disciplinary action relative to drug abuse in the University will be administered according to disciplinary procedures established for students, for faculty members and for nonfaculty employees. Furthermore, the illicit possession or transfer of these drugs is a state and/or federal offense, and the University will cooperate fully with appropriate authorities in the enforcement of the law.

FIREARMS AND OTHER WEAPONS PROHIBITED

State criminal law generally prohibits the open or concealed possession of firearms and other weapons (as defined in the statute) on the property of any public or private educational institution. The law is in full force and effect on the UNCC campus and is strictly observed. See General Statutes of North Carolina, Chapter 14, Article 35 (NCGS 14-269.2), and UNCC Policy Statement #32.

Directory

The University of North Carolina

Sixteen Constituent Institutions

William C. Friday, B.S., LL.B., LL.D., D.C.L. ..... President

Roy Carroll, B.A., M.A., Ph.D. ..... Vice President-Planning
Raymond H. Dawson, B.A., M.A., Ph.D. ..... Vice President-Academic Affairs
Edgar Walton Jones, B.S., M.S., Ph.D. ..... Vice President-Research and Public Service
L. Felix Joyner, A.B. ..... Vice President-Finance
Cleon F. Thompson, Jr., B.S., M.S., Ph.D. ..... Vice President-Student Services and Special Programs
John P. Kennedy, Jr., S.B., B.A., M.A., J.D. ..... Secretary of the University

George E. Bair, B.A., M.A., Ph.D. ..... Assistant to the President for University Telecommunications
Hugh S. Buchanan, Jr., B.A. ..... Associate Vice President-Finance
John F. Corey, B.S., M.A., Ed.D. ..... Associate Vice President-Student Services and Special Programs
John W. Dunlop, B.A. ..... Director, The University of North Carolina Center for Public Television
Kennis R. Grogan, B.S., M.B.A. ..... Associate Vice President-Finance
James L. Jenkins, Jr., A.B. ..... Assistant to the President
Arnold K. King, A.B., A.M., Ph.D. ..... Assistant to the President
R.D. McMillan, Jr., B.S. ..... Assistant to the President for Governmental Affairs
Richard H. Robinson, Jr., A.B., LL.B. ..... Assistant to the President
Donald J. Stedman, B.A., M.A., Ph.D. ..... Associate Vice President-Academic Affairs
Robert W. Williams, Jr., A.B., M.A., Ph.D. ..... Associate Vice President-Academic Affairs

History of the University of North Carolina

The University of North Carolina is comprised of all the public institutions of higher education in North Carolina that confer degrees at the baccalaureate level or higher. The University was authorized by the State Constitution in 1776, and it was chartered in 1789 by the General Assembly.

The University of North Carolina opened its doors to students at Chapel Hill in 1795. Thereafter, beginning in the latter part of the nineteenth century, the General Assembly of North Carolina has established and supported 15 other public senior institutions in keeping with Article IX, Section 8, of the Constitution of North Carolina which provides that the "General Assembly shall maintain a public system of higher education, comprising The University of North Carolina and such other institutions of higher education as the General Assembly may deem wise."

By 1969, The University of North Carolina included six constituent institutions, governed by a single Board of Trustees. This multi-campus University had its beginnings in legislation enacted in 1931 that defined The University of North Carolina to include The University of North Carolina at Chapel Hill, North Carolina State University at Raleigh, and The University of North Carolina at Greensboro. In the 1960's three additional campuses were added: The University of North Carolina at Charlotte, The University of North Carolina at Asheville and The University of North Carolina at Wilmington.

Beginning in 1877, the General Assembly of North Carolina established or acquired 10 additional separately governed state-supported senior institutions of higher education. They are: Appalachian State University, East Carolina University, Elizabeth City State University, Fayetteville State University, North Carolina Agricultural and Technical State University, North Carolina Central University, North Carolina School of the Arts, Pembroke State University, Western Carolina University and Winston-Salem State University. Then, in 1971, the General Assembly redefined The University of North Carolina, and under the terms of that legislation all 16 public senior institutions became constituent institutions of The University of North Carolina.

The constitutionally authorized Board of Trustees of the six-campus University of North Carolina was designated the Board of Governors and this body is by law The University of North Carolina. The Board of Governors consists of 32 members elected by the General Assembly, and it is charged with "the general determination, control, supervision, management and governance of all affairs of the constituent institutions." The chief executive officer of The University is the president.

Each constituent institution of The University has its own faculty and student body. The chief administrative officer of each institution is the chancellor, and the chancellors are responsible to the President.

Each constituent institution also has a board of trustees composed of 13 members: eight elected by the Board of Governors, four appointed by the Governor, and the elected president of the student body *ex officio*. (The School of the Arts has two additional *ex officio* trustees.) The principal powers of these institutional boards are exercised under a delegation of authority from the Board of Governors.

Members of the Board of Governors

The University of North Carolina

John R. Jordan, Jr. (Chairman) ..... Raleigh
Mrs. Hugh Morton (Vice Chairman) ..... Linville
Louis T. Randolph (Secretary) ..... Washington
Irwin Belk ..... Charlotte
F.P. Bodenheimer ..... Raleigh
Mrs. A.R. Bowe ..... Murfreesboro
B. Irvin Boyle ..... Charlotte
Terre Thomas Bullock ..... Shelby
Philip G. Carson ..... Asheville
Laurence A. Cobb ..... Charlotte
Wayne A. Corpening ..... Winston-Salem
John Edwin Davenport ..... Nashville
Walter R. Davis ..... Midland, Texas
William A. Dees, Jr. ..... Goldsboro
Charles Z. Flack, Jr. ..... Forest City
Jacob H. Froelich, Jr. ..... High Point
Daniel C. Gunter, Jr. ..... Gastonia
R. Phillip Haire ..... Sylva
Mrs. Howard Holderness ..... Greensboro
James E. Holmes ..... Winston-Salem
James E. Holshouser, Jr. ..... Southern Pines
William A. Johnson ..... Lillington
Robert L. "Roddy" Jones ..... Raleigh
Reginald McCoy ..... Laurinburg
Mrs. John F. McNair, III ..... Winston-Salem
J. Aaron Prevost ..... Hazelwood
Harley F. Shuford, Jr. ..... Hickory
Maceo A. Sloan ..... Durham
Asa T. Spaulding, Jr. ..... Durham
Dr. E.B. Turner ..... Lumberton
David J. Whichard, II ..... Greenville
William K. Woltz ..... Mount Airy

The University of North Carolina at Charlotte Board of Trustees

Chairman
Thomas M. Belk ..... Charlotte
Vice Chairman
James A. Hardison, Jr. ..... Wadesboro
Secretary
Phillip O. Berry ..... Charlotte
Ex Officio Member
Polly Purgason ..... President, Student Body, Greensboro

TERM EXPIRES JUNE 30, 1985

Thomas M. Belk ..... Charlotte
James W. Duffy ..... Charlotte
John L. Fraley, Jr. ..... Cherryville
Otto G. Stolz ..... Kannapolis
Thomas I. Storrs ..... Charlotte
Bland W. Worley ..... Charlotte

TERM EXPIRES JUNE 30, 1983

Phillip O. Berry ..... Charlotte
Mrs. Joseph Crosby ..... Charlotte
Frank H. Crowell ..... Lincolnton
James A. Hardison, Jr. ..... Wadesboro
Howard H. Haworth ..... Morganton
W. Duke Kimbrell ..... Gastonia

HONORARY TRUSTEES

Mrs. J.T. Adair ..... Newton
F. Douglas Biddy ..... Durham
William E. Bluford ..... Charlotte
C.C. Cameron ..... Charlotte
N.K. Dickerson ..... Monroe
John L. Fraley ..... Cherryville
Mrs. Samuel C. Hair ..... Charlotte
Mrs. Parks M. King, Jr. ..... Charlotte
Mrs. C.D. Spangler, Jr. ..... Charlotte
James L. Woodson ..... Salisbury

Juanita S. Sims ..... Assistant Secretary

The University of North Carolina at Charlotte Administrative Officers and Staff

Chancellor's Office

E.K. Fretwell Jr., A.B., M.A.T., Ph.D ..... *Chancellor*
Juanita S. Sims ..... *Assistant to the Chancellor*
William McKinley Steimer, B.A., J.D. ..... *Assistant to the Chancellor for Legal Affairs*

Academic Affairs

James H. Werntz, Jr., B.A., M.S., Ph.D. ..... *Vice Chancellor for Academic Affairs*
Barbara Ann Goodnight, B.S., M.A., Ph.D. ..... *Associate Vice Chancellor for Academic Affairs and Director of Graduate Studies*
Harold Smith Clarke, B.S.B.A., M.Ed. ..... *Assistant Vice Chancellor for Academic Affairs*
*Benjamin Houston, Romine, Jr., B.A., M.A., Ph.D. ..... *Executive Associate for Planning and Program Development*
Robert Alan Gwaltney, A.B., M.A. ..... *Dean of Admissions and Records*
Kathi M. Baucom, A.B., M.Ed. ..... *Director of Admissions*
Lillian Mills Anspach ..... *Admissions Counselor*
Craig Fulton, B.A. ..... *Admissions Counselor*
Jean Meachem, B.A. ..... *Minority Program Development Officer*
Lewis Robert Grogan, B.A., M.Ed. ..... *Assistant to the Dean of Admissions and Records*
Barbara Rogers Blaney, B.A., M.Ed. ..... *Registrar*
Douglas Francis Sutherland, B.A., M.A. ..... *Assistant Registrar*
Charles Clinton Hight, B.Arch. ..... *Dean, College of Architecture*
Sherman LeRoy Burson, Jr., B.S., Ph.D ..... *Dean, College of Arts and Sciences*
Schley Roosevelt Lyons, B.S., B.A., M.A., Ph.D. *Associate Dean, College of Arts and Sciences*
Bertha Lyons Maxwell, B.A., M.A., Ph.D. ..... *Director, Afro-American and African Studies*
Roger Howard Trumbore, B.S., Ph.D. ..... *Chairperson, Department of Biology*
Robert Harry Gibson, A.B., M.A., Ph.D. ..... *Chairperson, Department of Chemistry*
Vacant ..... *Chairperson, Department of Creative Arts*
Charles William Dean, B.A., M.A., Ph.D. ..... *Chairperson, Department of Criminal Justice*
Julian Dewey Mason, Jr., A.B., M.A., Ph.D. ..... *Chairperson, Department of English*
Robert Milnor Gleaves ..... *Chairperson, Department of Foreign Languages*
Alfred Wright Stuart, B.S., M.S., Ph.D. ..... *Chairperson, Department of Geography and Earth Sciences*
Edward Spaulding Perzel, B.A., M.A., Ph.D. ..... *Chairperson, Department of History*
Barnet M. Weinstock, A.B., Ph.D. ..... *Chairperson, Department of Mathematics*
James David Shumaker, A.B. M.A., Ph.D. ..... *Chairperson, Department of Philosophy*
Edward Samuel Oberhofer, B.S., M.S., Ph.D. ..... *Chairperson, Department of Physics*
Robert John Mundt, A.B., M.A., Ph.D. ..... *Chairperson, Department of Political Science*
Douglas Lee Grimsley, B.S., Ph.D. ..... *Chairperson, Department of Psychology*
Richard Arnold Underwood, B.A., B.D., S.T.M., Ph.D. ..... *Chairperson, Department of Religious Studies*
George Seymour Rent, A.B., M.A., Ph.D. ..... *Chairperson, Department of Sociology and Anthropology*
Lee Edward Reading, B.A., M.S. ..... *Director, Venture Program*

**Joint Appointment with the Division of Research and Public Service.*

Richard Eugene Neel, B.S., M.S., Ph.D. ..... *Dean, College of Business Administration*
Thomas Coke Turner, B.S., M.B.A., C.P.A. ..... *Chairperson, Department of Accounting*
Thomas Howard Stevenson, B.S.B.A., M.B.A., Ph.D ..*Chairperson, Department of Business Administration*
William Young Davis, Jr., B.A., Ph.D. ..... *Chairperson, Department of Economics*
Robert Douglas Snyder, B.S.M.E., M.S.M.E., Ph.D. ..... *Dean, College of Engineering*
Burton Howard Wayne, B.S., M.S., Ph.D. ..... *Chairperson, Department of Engineering Analysis and Design*
Paul Henry DeHoff, B.S.M.E., M.S., Ph.D. ..... *Chairperson, Department of Engineering Science, Mechanics, and Materials*
James William Shelnutt, B.M.E., M.S. ... *Chairperson, Department of Engineering Technology*
Lee Ellis King, B.S.C.E., M.C.E., D.E. ..... *Chairperson, Department of Urban and Environmental Engineering*
Harold William Heller, B.S., M.S., Ed.D. ..... *Dean, College of Human Development and Learning*
Gail McKnight Huffman, B.Ed., M.Ed., Ed.D. ..... *Acting Chairperson, Department of Educational Leadership and Instruction*
Harvey Frank Murphy, B.A., M.A., Ph.D. ..... *Chairperson, Department of Health and Physical Education*
Mary Thomas Burke, B.A., M.A., Ph.D. ..... *Acting Chairperson, Department of Human Services*
Maj. Roy C. White, B.S., M.P.A. ..... *Head, U.S. Air Force ROTC*
Col. Roger Everett Powell, B.S., M.S. ..... *Head, U.S. Army ROTC*
Louise C. Schlachter, B.S., M.A., Ph.D. ..... *Dean, College of Nursing*
Vacant ..... *Director, Computer Center*
James Ronald Short, B.S.B.A. ..... *Assistant Director, Computer Center*
George Logan Grubbs, B.S. ..... *Director, Student Information Systems*
Dorlan Dean Mork, B.A., M.A., D.Ed. ..... *Director, Learning Resources Center*
Raymond A. Frankle, A.A., B.A., M.L.S. ..... *Director, Library*
Richard Burke Eggleton, B.S., Ph.D. ..... *Assistant Director, Library*

Business Affairs

Leo E. Ells, B.S., M.B.A. ..... *Vice Chancellor for Business Affairs*
Robert E. Busche, B.B.C., M.A., P.E. ..... *Director of Physical Plant*
James L. Crawford, B.A. ..... *Business Manager*
Donald A. Currie, Jr., B.S., M.B.A. ..... *Director of Personnel*
James H. Houston, B.S. ..... *Director of Purchasing*
Jerry E. Hudson, B.S. ..... *Director of Public Safety*
Donald M. MacKay, A.B., M.Ed. ..... *Director of Auxiliary and Business Services*
Harry H. Arnold, B.A., M.B.A. ..... *Director of Financial Services*
M.J. Butler, B.G.S., B.A., B.S. ..... *Director of Campus Sales*
Walter S. Booth, B.S., M.A., C.P.A. ..... *Internal Auditor*

Development Affairs

William M. Britt, B.S., M.Ed., Ed.D. ..... *Vice Chancellor for Development*
Dean W. Colvard, B.S., M.A., Ph.D. ..... *Chancellor Emeritus*
Bonnie E. Cone, B.S., A.M. ..... *Vice Chancellor Emeritus*
Kathy Kaye Nunnally, B.A. ..... *Researcher*
Charles S. Myerly, B.S. ..... *Executive Director, UNCC Foundations*
Sarah O. Cullen ..... *Assistant Secretary, UNCC Foundation*
Susan Piscitelli, B.A., M.A. ..... *Director of Alumni Affairs*
Gwen Waddell ..... *Temporary Assistant to the Director of Alumni Affairs*

Research and Public Service

Douglas Milton Orr, Jr., B.A., M.B.A., Ph.D ..... *Vice Chancellor for Research and Public Service*
John Barry Lesley, B.A., M.B.A. ..... *Director, Academic Grants and Contracts*
Clyde L. Walker, A.B., M.A. ..... *Director, Athletics*
Penny Brawley ..... *Women's Tennis Coach*
David Alan Hall, B.A. ..... *Cross Country Coach*
Edward W. Hopper, B.A., A.M., Ph.D. ..... *Men's Tennis Coach*
Kay Johnson, B.S., M.S. ..... *Women's Volleyball and Softball Coach*
Floyd William Kerr, B.A., M.A. ..... *Men's Assistant Golf Coach*
Robert J. Nastase, B.S., M.A. ..... *Men's Assistant Basketball Coach*
Martha Ann Payne, B.S., M.Ed. ..... *Women's Basketball Coach*
Vacant ..... *Men's Soccer Coach*
Marty R. Rasnake, B.A. ..... *Director, Sports Information*
Gary Linn Robinson, B.A., M.A. ..... *Head Baseball Coach*
David R. Taylor, B.A. ..... *Director, Athletic Foundation and Promotions*
Melvin A. Watkins, B.A. ..... *Men's Assistant Basketball Coach*
Judith Anita Wilkins, B.S., M.S. ..... *Assistant Director, Athletics*
Harold Robert Wissel, B.S., M.S., D.P.E. ..... *Men's Head Basketball Coach*
R. Oakley Winters, A.B., M.A.T., Ed.D. ..... *Director, Continuing Education and Extension*
Kenneth G. Burrows, B.A., M.A., Ph.D. ..... *Program Director*
Dorothea G. Lakin, B.A. ..... *Program Director*
Sylvia Margaret Reed, B.A., M.A. ..... *Program Director*
Robert Glenn Tyndall, II, B.A., Ed.D. ..... *Program Director*
Earl Leslie Backman, B.A., M.A., Ph.D. ..... *Director, Center for International Studies*
Marian Evelyn Beane, B.A., M.A. ..... *Coordinator*
Judith M. Case ..... *Assistant Coordinator*
Barbara Reichel Mattingly, B.A., M.A. ..... *Lecturer*
Mary Kobylanski Moya, B.A., M.A. ..... *Coordinator*
Nancy L. Pfingstag, B.A., M.A. ..... *Lecturer*
Levela Irene Rickard, B.A. ..... *Coordinator*
Allie P. Wall, B.A., M.A. ..... *Lecturer*
*Benjamin Houston Romine, Jr., B.A., M.A., Ph.D. ..... *Executive Associate for Planning and Program Development*
*Wanda Ball Fisher, B.S. ..... *Director of Institutional Research*
*Jo Ann Miles, B.A. ..... *Institutional Research Associate*
James Kenneth Sanford, A.B., M.A. ..... *Director, Public Information and Publications*
Garry Ballard, B.A. ..... *Associate Director*
Vivian Fogle, B.A. ..... *Publications Specialist*
Pamela Taylor, B.C.A. ..... *Graphic Designer*

**Joint Appointment with the Division of Academic Affairs*

James William Clay, B.S., M.S., Ph.D. ..... *Director, Urban Institute*
Jane A. Begole, B.A., M.U.A. ..... *Special Projects Coordinator*
Mary Dawn Liston, B.A., M.S. ..... *Faculty Research and Development Director*
William Joseph McCoy, A.B., M.A., Ph.D. ..... *Community Research and Service Director*
Paul Douglas Smith, B.S., M.A. ..... *Regional Information System Director*
Jennifer Roth, B.A., M.A. ..... *Station Manager, WFAE*
Kathryn Ward Bumgardner, B.A. ..... *Promotion and Resource Director*
Jean Inaba, B.A. ..... *Music/Performance Director*
Roger Moore, B.S. ..... *Cultural and Public Affairs Producer*
Paul B. Stribling, B.A. ..... *Operations Manager*

Student Affairs

Robert L. Albright, A.B., M.A., Ph.D ..... *Vice Chancellor for Student Affairs*
Charles F. Lynch, B.A., M.Ed. ..... *Dean of Students*
Vernon Ray Parrish, Jr., A.A., B.A., M.A. ..... *Associate Dean of Students and Director, Cone University Center*
Michael Barry Godlewski, B.A. ..... *Associate Director, Cone University Center*
Barbara Ann Torres, B.S., M.S. ..... *Director, Orientation and Campus Programs*
Cathy Dianne Wilson, B.A., M.Ed. ..... *Assistant Director, Campus Programs*
Frank Joseph, B.A., M.Ed. ..... *Director, Commuter Life and Leadership Development*
Jennifer Lee Ensign, B.A. ..... *Director, Craft Cellar*
Lee Edward Reading, B.A., M.S. ..... *Director, Venture*
Diane E. Edelman, B.A., M.Ed. ..... *Associate Director, Venture*
Jacklyn A. Simpson, B.S., M.Ed. ..... *Associate Dean of Students and Director, Residence Life*
Charles William Colby, B.A., M.A. ..... *Associate Director, Residence Life*
Keith N. Wassum, B.A., M.B.A. ..... *Assistant Director, Residence Life*
Jerome T. Crotty, B.S., M.Ed. ..... *Resident Coordinator, Moore Hall*
Toni H. Freeman, B.A., M.A. ..... *Resident Coordinator, Scott Hall*
Deborah M. Hearst, B.S., M.Ed. ..... *Resident Coordinator, Sanford Hall*
Julie A. Keehner, B.S., M.S. ..... *Resident Coordinator, Phase IV*
Valerie K. Luko, B.A., M.Ed. ..... *Resident Coordinator, Holshouser Hall*
Bradley W. Reid, B.S., M.S. ..... *Resident Coordinator of Apartments*
Floyd William Kerr, B.A., M.A. ..... *Director, Intramurals*
Terrie V. Houck, B.A., M.Ed. ..... *Assistant Director, Intramurals*
Roy R. Fielding, B.A., M.Ed. ..... *Aquatics Director*
Ronald Bernard Simono, B.S., M.S., Ph.D. ..... *Director, Counseling Center*
Evelyn C. Davis, B.A., M.A.T., Ed.D. ..... *Coordinator, Learning Assistance Services*
Peggy S. Smith, B.S., M.Ed. ..... *Assistant Coordinator, Learning Assistance Services*
Susan R. Furr, B.A., M.A., Ph.D. ..... *Counseling Psychologist*
Susan M. Parry, B.A., M.A., Ph.D. ..... *Counseling Psychologist*
Dale Gerard Wachowiak, A.B., M.A., Ph.D. ..... *Counseling Psychologist*
Diane Shepard, B.S., M.Ed., Ed.S., Ph.D. ..... *Career Development Coordinator*
Olav Niilend, B.A., M.D. ..... *Medical Director, Student Health Center*
Curtis R. Whalen, B.S., M.Ed ..... *Director, Student Financial Aid*
Virginia Jones Edwards ..... *Assistant Director, Student Financial Aid*
Mildred English, B.S., M.A. ..... *Director of Placement*

The following persons are employed by various denominations and churches and are present on campus full-time to serve the spiritual needs of members of the University community.
Donald S. Rogers, B.A., M.A., B.D. ..... Baptist
Ben Curry, B.A., M.Div. ..... Presbyterian/Methodist
Joseph Zuschmidt, B.A., M.S. ..... Catholic

Faculty

***Indicates appointment to the Graduate Faculty of the University of North Carolina at Charlotte. Certain appointments, promotions, and resignations are not included.**

***William Clyde Friday,** *President, The University of North Carolina,* B.S., North Carolina State College; L.L.B., University of North Carolina at Chapel Hill

***E.K. Fretwell Jr. (1979),** *Chancellor, the University of North Carolina at Charlotte, and Professor of Educational Leadership and Instruction,* A.B., Wesleyan University; M.A.T., Harvard University; Ph.D., Columbia University

Robert L. Albright, *Vice Chancellor for Student Affairs,* A.B., Lincoln University; M.A., Tufts University; Ph.D., Kent State University.

***William Morris Britt (1972),** *Vice Chancellor for Development and Professor of Educational Leadership and Instruction,* B.S., Western Carolina University; M.Ed., University of North Carolina at Chapel Hill; Ed.D., University of Tennessee

Leo E. Ells (1975), *Vice Chancellor for Business Affairs and Lecturer in Business Administration,* B.S., University of Maryland; M.B.A., Syracuse University

***Douglas Milton Orr, Jr. (1968),** *Vice Chancellor for Research and Public Service, and Professor of Geography,* B.A., Davidson College; M.B.A., Ph.D., University of North Carolina at Chapel Hill

James H. Werntz, Jr. (1981), *Vice Chancellor for Academic Affairs and Professor of Physics,* B.A., Oberlin College; M.S., Ph.D., University of Wisconsin

***Mohamed Abdel-Hameed (1974),** *Associate Professor of Mathematics,* B.S., Cairo University; M.S., Ph.D., Florida State University

***Leon Reed Adams (1972),** *Associate Professor of Criminal Justice,* B.A., University of North Carolina at Chapel Hill; M.A., University of Maryland; Ph.D., Florida State University

Kelly Miller Alexander, Jr. (1981), *Lecturer in Afro-American and African Studies,* A.B., M.P.A., University of North Carolina at Chapel Hill

***Charles Michael Allen (1974),** *Associate Professor of Engineering Analysis and Design,* B.S.E.E., M.S.E.E., Carnegie-Mellon Institute; Ph.D., State University of New York at Buffalo

***Hany Mahmoud Aly (1980),** *Assistant Professor of Engineering Science,* B.S., M.S., Cairo University; Ph.D., Auburn University

***David James Amante (1974),** *Associate Professor of English,* A.B., M.A., Ph.D., University of Michigan

***Louis Amato (1980),** *Assistant Professor of Economics,* A.B., Lenoir Rhyne College; M.A., University of North Carolina at Greensboro; Ph.D., University of South Carolina

***Don Allen Ammons (1977),** *Assistant Professor of Human Services,* B.S.Ed., Defiance College; M.Ed., Ph.D., University of Toledo

Deborah Walsh Anderson (1981), *Lecturer in Mathematics,* B.S., M.S., Virginia Polytechnic Institute and State University

Elizabeth T. Anderson (1978), *Adjunct Lecturer in Medical Technology,* B.A., University of North Carolina at Greensboro; M.T.

***Robert Graham Anderson (1970),** *Professor of Architecture,* B.Arch., North Carolina State College; M.Arch., Harvard University

*Ronald Eric Anderson (1967), *Professor of Art*, B.F.A., Miami University; M.F.A., Pratt Institute

Priscilla Mae Andrews (1980), *Associate Professor of Nursing*, B.S., M.S., Boston University; R.N.

*George Anthony Antonelli (1972), *Associate Professor of Educational Leadership and Instruction*, B.A., Southern Illinois University; M.A., University of Wisconsin; Ph.D., Southern Illinois University

*Clyde Robert Appleton (1978), *Associate Professor of Creative Arts*, A.B., Park College; M.Mus.Ed., University of Arizona; Ph.D., New York University

*Marvin Cara Armstrong, Jr. (1971), *Assistant Professor of Human Services*, B.S.Ed., Texas Technological College; M.Ed., D.Ed., University of Florida

*Theodore Self Arrington (1973), *Associate Professor of Political Science*, B.A., University of New Mexico; M.A., Ph.D., University of Arizona

Viviane Lloyd Avant (1979), *Lecturer in Health and Physical Education*, B.S., High Point College; M.A.Ed., East Carolina University

Luz Aveleyra (1980), *Lecturer in Architecture (part-time)*, B.A., George Washington University; M.A., Michigan State University; M.L.S., University of Maryland

Kenneth Joseph Ayala (1979), *Lecturer in Engineering Technology*, B.S., Virginia Military Institute; M.S.E.E., Georgia Institute of Technology

*Earl Leslie Backman (1971), *Director, Center for International Studies, and Associate Professor of Political Science*, B.S., M.A., Ph.D., University of Oregon

Rahim Banizaman-Lari (1981), *Lecturer in Architecture (part-time)*, B.A., B.Arch., University of North Carolina at Charlotte

*Lawrence Samuel Barden (1974), *Associate Professor of Biology*, B.S., Hendrix College; M.S., University of Maine; Ph.D., University of Tennessee

*Frank Carey Barnes (1973), *Associate Professor of Business Administration*, B.I.E., Georgia Institute of Technology; M.B.A., Ph.D., Georgia State University

*Newton Hall Barnette (1964), *Distinguished Professor of Engineering*, B.S., Louisiana Polytechnic Institute; M.S., Virginia Polytechnic Institute; Ph.D., Cornell University; P.E.

*Robert Latta Barrett (1979), *Assistant Professor of Human Services*, A.B., Southwestern at Memphis; M.A.T., Vanderbilt University; M.Ed., University of North Carolina at Charlotte; Ph.D., Georgia State University

*David Paul Bashor (1971), *Assistant Professor of Biology*, B.S., Ph.D., Florida State University

Carol McFarland Baxter (1978), *Lecturer in Business Administration*, B.A., M.A., Ball State University

*David Martin Bayer (1970), *Associate Professor of Structural Engineering*, B.C.E., Georgia Institute of Technology; M.S.C.E., Ph.D., Vanderbilt University; P.E.

Jack Mitchell Beasley (1972), *Associate Professor of Creative Arts*, B.A., Vanderbilt University; M.F.A., University of Georgia

*Carlos Goodwin Bell (1970), *Celanese Professor of Civil Engineering*, B.S.C.E., Texas A & M University; S.M., S.D., Harvard University

Nelson Speer Benzing, Jr. (1979), *Associate Professor of Architecture*, B.S., B.Arch., Georgia Institute of Technology; M.Arch., Pratt Institute

*Fernando Bertoli (1972), *Assistant Professor of Sociology*, B.A., Universidad de San Marcos; M.S., Ph.D., Cornell University

***Surasakdi Bhamornsiri (1978),** *Assistant Professor of Accounting,* B.S., M.B.A., Middle Tennessee State University; D.B.A., University of Tennessee; C.P.A.

Julia Kirk Blackwelder (1977), *Assistant Professor of History,* B.A., University of Pennsylvania; M.A., Ph.D., Emory University

***Lillian Sharon Blocker (1980),** *Visiting Assistant Professor of Educational Leadership and Instruction,* B.S.Ed., Texas Tech University; M.Ed., University of Colorado; Ed.D., University of Northern Colorado

***Rachel Ann Bonney (1973),** *Associate Professor of Anthropology,* B.A., M.A., University of Minnesota; Ph.D., University of Arizona

***Ronald Earl Booth, Jr. (1968),** *Professor of Music,* B.Mus., University of Texas; M.Mus., Indiana University; Ph.D., University of Iowa

***Larry Charles Bostian (1967),** *Associate Professor of Health and Physical Education,* B.S., North Carolina State College; M.Ed., University of North Carolina at Chapel Hill; D.Ed., University of Virginia

Benny Don Bowers (1976), *Lecturer in Business Administration,* B.S., M.T.E., North Carolina State University at Raleigh; M.B.A., University of North Carolina at Chapel Hill

Robert Franklin Brabham, Jr. (1969), *Librarian and Associate Professor,* B.A., Furman University; M.A., University of North Carolina at Chapel Hill; M.Ln., Emory University

Geraldine Brady (1981), *Adjunct Associate Professor of Nursing,* B.A., B.S.N., University of South Carolina; M.N., Emory University

Doris Anne Bradley (1968), *Librarian and Associate Professor,* A.B., Wilson College; B.S.L.S., University of North Carolina at Chapel Hill

***Saul Brenner (1965),** *Associate Professor of Political Science,* B.A., Brooklyn College; L.L.B., Columbia University; M.A., Brooklyn College; Ph.D., New York University

Edwina Bringle (1973), *Associate Professor of Creative Arts*

***William Morris Britt (1972),** *Vice Chancellor for Development and Professor of Educational Leadership and Instruction,* B.S., Western Carolina University; M.Ed., University of North Carolina at Chapel Hill; Ed.D., University of Tennessee

Marcia Singletary Brooks (1975), *Adjunct Assistant Professor of Nursing,* B.S., University of South Carolina; M.S.N., University of North Carolina at Chapel Hill

Janet Edwards Brown (1975), *Adjunct Lecturer in Nursing,* R.N.

Kendall Walker Brown (1981), *Visiting Assistant Professor of History,* B.A., Brigham Young University; M.A., Ph.D., Duke University

***Richard Dean Brown (1975),** *Assistant Professor of Biology,* B.A., Columbia Union College; M.S., Ph.D., Ohio State University

James Stephen Browning (1967), *Lecturer in Urban and Environmental Engineering (part-time),* B.S.C.E., M.S., North Carolina State University

Gowkarran Budhu, *Visiting Assistant Professor of Urban and Environmental Engineering,* Diploma, Polytechnic of the South Bank; C.E., Ohio State University; M.S., Ph.D., Virginia Polytechnic Institute and State University

Deborah Creed Bumgardner (1978), *Lecturer in Psychology,* B.A., University of North Carolina at Charlotte

***Mary Thomas Burke (1970),** *Acting Chairperson, Department of Human Services, and Professor of Human Services,* B.A., Belmont Abby College; M.A., Georgetown University; Ph.D., University of North Carolina at Chapel Hill

David A. Barkhalter (1981), *Institute Associate and Adjunct Professor of Political Science,* B.A., Bethel College

John Bland Burkhardt (1980), *Adjunct Associate Professor of Nursing,* B.B.A., Memphis State University; M.H.A., Duke University

***Glenn Stephen Burne (1971),** *Professor of English,* B.A., University of California at Berkeley; Diplome d'Etudes, University of Paris; M.A., Ph.D., University of Washington

***Sherman LeRoy Burson, Jr. (1963),** *Dean, College of Arts and Sciences, and Charles H. Stone Professor of Chemistry,* B.S., Ph.D., University of Pittsburgh

***Stewart Fowler Bush (1969),** *Professor of Chemistry,* A.B., Erskine College; Ph.D., University of South Carolina

Donald Roy Byrum (1974), *Associate Professor of Creative Arts,* B.F.A., Rhode Island School of Design; M.F.A., University of Michigan

***Elinor Brooks Caddell (1965),** *Sue A. Kerley Professor of Nursing,* B.S.N.E., M.S.N., Duke University; R.N.

***Lawrence Gibson Calhoun, Jr. (1973),** *Associate Professor of Psychology,* B.A., St. Andrews Presbyterian College; M.A., Xavier University; Ph.D., University of Georgia

***Arnold Augustus Cann, Jr. (1975),** *Associate Professor of Psychology,* B.S., Northeastern University; Ph.D., Indiana University

***Iris Belinda Carlton (1981),** *Assistant Professor of Social Work,* B.S., North Carolina A & T State University; M.A., University of Chicago

***Robert Raymond Carter (1974),** *Lecturer in Educational Leadership and Instruction,* B.S.Ed., Massachusetts State College at Fitchburg; A.M., Ed.D., George Washington University

***Ann Cathey Carver (1969),** *Professor of English,* B.A., Limestone College; M.A., University of Arkansas; Ph.D., Emory University

***Thomas Joseph Cassen (1976),** *Assistant Professor in Chemistry,* B.S., Ph.D., Polytechnic Institute of Brooklyn

***Susan Fishman Cernyak (1972),** *Associate Professor of German,* B.A., Southwest Missouri State College; M.A., Ph.D., University of Kansas

Kuang-fu Chang (1981), *Visiting Lecturer in Educational Leadership and Instruction,* B.A., M.A., National Chengchi University; Ed.S., Eastern Illinois University

***Keh-Hsun Chen (1978),** *Assistant Professor of Mathematics,* B.S., Taiwan Cheng-Kung University; M.S., National Tsing Hua University; Ph.D., Duke University

Robert Cheng-Jung Chen (1980), *Assistant Professor of Civil Engineering Technology,* B.A., Northwest Missouri State University; M.S., University of Oklahoma

Hong Chen-Ye (1981), *Adjunct Assistant Professor of Engineering Analysis and Design,* Diploma, University of Science and Technology of China

***Harry Ira Chernotsky (1978),** *Assistant Professor of Political Science,* B.A., M.A., Ph.D., Rutgers, The State University

Emily Edge Chiles (1979), *Instructor in Nursing,* B.S.N., University of North Carolina at Charlotte; M.S.N., University of North Carolina at Chapel Hill

Charles Burnon Christie (1971), *Associate Professor of Electrical Engineering,* B.S.E.E., Milwaukee School of Engineering; M.E., Pennsylvania State University

***Gail Savage Clark (1977),** *Assistant Professor of History,* B.A., M.A., Ph.D., University of Texas at Austin

Harold Smith Clarke (1969), *Assistant Vice Chancellor for Academic Affairs and Lecturer in Business Administration,* B.S.B.A., Northeastern University; M.Ed., University of Vermont

***Thomas Blair Clark (1976),** *Assistant Professor of Educational Leadership and Instruction,* B.A., M.A.T., University of North Carolina at Chapel Hill; M.A., University of North Carolina at Greensboro; Ph.D., Florida State University

***James William Clay (1965),** *Director, Institute for Urban Studies and Community Service, and Professor of Geography and Earth Science,* B.S., M.S., Marshall University; Ph.D., University of North Carolina at Chapel Hill

Myrtle May Clinton (1978), *Associate Professor of Nursing,* B.S., M.A., Columbia University

Emmett Lee Cochrane (1979), *Lecturer in Engineering Technology (part-time),* B.I.E., M.S.E., University of Florida

Charles William Colby (1973), *Associate Director of Residence Life and Lecturer in Human Services,* B.A., M.A., Virginia Polytechnic Institute and State University

Richard Scott Cole (1976), *Lecturer in Human Services,* B.A., Ohio Wesleyan University

Lynn Grier Coleman (1981), *Instructor in Nursing,* B.S.N., M.S.N., University of North Carolina at Chapel Hill

***Robert Joseph Coleman (1970),** *Associate Professor of Electrical Engineering,* B.S.E.E., M.S., Ph.D., Auburn University

Richard Monroe Conboy (1979), *Assistant Professor of Business Administration,* B.S.B.A., Old Dominion University; M.B.A., Ph.D., Virginia Polytechnic Institute and State University

John Edward Connaughton (1978), *Assistant Professor of Economics,* B.S., Boston State College; M.A., Ph.D., Northeastern University

***Robert Ballard Conrad (1970),** *Professor of Business Administration,* B.S., Ph.D., University of North Carolina at Chapel Hill

***James Richard Cook (1980),** *Lecturer in Psychology,* A.B., Ph.D., Indiana University

***Thomas Michael Corwin (1974),** *Associate Professor of Physics,* B.S., Tulane University; M.S., Johns Hopkins University; Ph.D., Georgia Institute of Technology

Taylor Howard Cox, Jr. (1981), *Lecturer in Business Administration,* B.S., M.B.A., Wayne State University

***Thomas Edward Crippen (1969),** *Associate Professor of Engineering Mechanics,* B.S., A & M College of Texas; M.S., Ph.D., Texas A & M University

Robert Thomas Croghan (1974), *Assistant Professor of Creative Arts,* B.A., Franklin College

***James Carroll Crosthwaite (1965),** *Professor of Chemistry,* B.S., Anderson College; M.A., DePauw University; Ph.D., Duke University

***Marvin Joseph Croy (1980),** *Instructor in Philosophy,* B.A., Ph.D., Florida State University

Donald Archibald Currie (1972), *Director of Personnel and Lecturer in Business Administration,* B.S., University of North Carolina at Chapel Hill; M.B.A., University of North Carolina at Charlotte

***William Albert Dailey (1969),** *Associate Professor of Voice,* B.M.E., Bethany College; M.M.E., Indiana University; Ph.D., Catholic University

Loran LeRoy Danielson (1977), *Adjunct Professor of Biology,* B.A., M.S., Ph.D., State University of Iowa

Albert Sidney Daughtridge, Jr. (1978), *Lecturer in Engineering Science and Engineering Technology (part-time),* B.S.C.E., Duke University; M.S., Ph.D., N.C. State University at Raleigh

Glenna Kathryn Davenport-Cook (1977), *Assistant Professor of Nursing,* B.S., University of North Carolina at Charlotte; M.P.H., University of North Carolina at Chapel Hill

***Alan Richard Davis (1981),** *Lecturer in English,* B.A., M.A., University of Southwestern Louisiana; Ph.D., University of Denver

***Boyd Hill Davis (1970),** *Professor of English,* B.A., University of Kentucky; M.A., Ph.D., University of North Carolina at Chapel Hill

***Evelyn C. Davis (1977),** *Coordinator of Educational Services Program and Associate Professor of Educational Leadership and Instruction,* B.A., Furman University; M.A.T., Converse College; Ed.D., Auburn University

Gregory Davis (1979), *Lecturer in Afro-American and African Studies,* B.A., University of North Carolina at Charlotte; M.Div., Duke University

***William Young Davis, Jr. (1970),** *Chairperson, Department of Economics, and Professor of Economics,* B.A., Furman University; Ph.D., University of Georgia

***Robert Alan Day (1981),** *Assistant Professor of Sociology,* B.A., University of Montana; M.A., Ohio State University; Ph.D., University of Missouri-Columbia

Charles William Dean (1982), *Chairperson, Department of Criminal Justice, and Professor of Criminal Justice,* B.A., Asbury College; M.A., Ph.D., University of Illinois.

Howard Travis DeHaven (1977), *Adjunct Lecturer in Medical Technology,* B.S., Murray State University; M.D., University of Louisville

***Paul Henry DeHoff (1978),** *Chairperson, Department of Engineering Science, Mechanics, and Materials, and Professor of Engineering Science,* B.S.M.E., M.S., Pennsylvania State University; Ph.D., Purdue University

Basil George Delta (1981), *Adjunct Professor of Nursing,* P.C.N., M.D., University of Istanbul; M.P.H., Johns Hopkins University

***Louis Diamant (1963),** *Professor of Psychology,* B.S., M.A., New York University; Ph.D., Yeshiva University

Jane Murray Dillard (1977), *Associate Professor of Creative Arts,* B.S., M.A.Ed., East Carolina University

***Dennis Daniel Dorin (1972),** *Associate Professor of Political Science,* B.A., Arizona State University; M.A., Ph.D., University of Virginia

***Jill Susanna Dubisch (1972),** *Associate Professor of Anthropology,* B.A., Reed College; M.A., Ph.D., University of Chicago

***Thomas David DuBois (1967),** *Professor of Chemistry,* B.A., McMurry College; M.S., Ph.D., Ohio State University

Theresa Pearl Dulski (1980), *Assistant Professor of Nursing,* B.S.N., D'Youville College; M.S., State University of New York at Buffalo

Patricia Burke Easley (1972), *Librarian and Assistant Professor,* B.A., State University of New York at Buffalo; M.L.S., University of North Carolina at Chapel Hill

***Barbara Ann Edwards (1976),** *Assistant Professor of Educational Leadership and Instruction,* B.S., Kent State University; M.A., Ph.D., University of South Florida

***Nancy Claire Edwards (1968),** *Associate Professor of Biology,* B.A., Agnes Scott College; M.A., Ph.D., University of North Carolina at Chapel Hill

Martin David Egan (1976), *Lecturer in Architecture (part-time),* B.S., Lafayette College; S.M., Massachusetts Institute of Technology

*Richard Burke Eggleton (1978), *Assistant Director of the Library and Assistant Professor*, B.S., Central Connecticut State College; Ph.D., Drexel University

Myriette Revenna Ekechukwu (1981), *Assistant Professor of Afro-American and African Studies*, B.S.Ed., South Carolina State College; M.S.L.S., University of Southern California; Ph.D., University of Washington

George Hill Eliott (1970), *Associate Professor of Electrical Engineering Technology*, B.S., Mississippi State University; M.S., University of Southern California; M.Ed., Pennsylvania State University; P.E.

*Seth Howard Ellis (1963), *Professor of English*, A.B., University of Delaware; A.M., University of Missouri; Ph.D., University of Southern Caifornia

Leo E. Ells (1975), *Vice Chancellor for Business Affairs and Lecturer in Business Administration*, B.S., University of Maryland; M.B.A., Syracuse University

*Paul David Escott (1974), *Associate Professor of History*, B.A., Harvard College; M.A., Ph.D., Duke University

*Jack Burnie Evett (1967), *Associate Professor of Environmental Engineering*, B.S., M.S., University of South Carolina; Ph.D., Texas A & M University; P.E.

*Charles Denton Fernald (1971), *Associate Professor of Psychology*, B.S., University of Massachusetts; Ph.D., Indiana University

*Gary Paul Ferraro (1971), *Associate Professor of Anthropology*, B.A., Hamilton College; M.A., Ph.D., Syracuse University

Roy Russell Fielding (1978), *Lecturer in Health and Physical Education and Aquatics Director*, B.A., M.A., University of Northern Iowa

Fred William Fischer (1981), *Adjunct Lecturer in Anthropology*, B.A., University of Tennessee; M.A., University of Michigan; Ph.D., Washington University

*Stephen Michael Fishman (1967), *Professor of Philosophy*, A.B., Columbia College; M.A., Ph.D., Columbia University

*Daniel William Fleitas (1970), *Associate Professor of Political Science*, B.S.P., University of Florida; B.A., University of South Florida; M.S., Ph.D., Florida State University

David Martin Fligel (1981), *Lecturer in Accounting (part-time)*, B.B.A., M.Acc., University of Georgia

Charles Lenean Flynn, Jr. (1981), *Visiting Assistant Professor of History*, B.A., Hamilton College; M.A., Ph.D., Duke University

*Thomas Robert Forrest (1973), *Associate Professor of Sociology*, B.S., University of Wisconsin; M.A., Ph.D., Ohio State University

Raymond A. Frankle (1981), *Director of the Library and Associate Professor*, A.A., 1961, B.A., 1963, Concordia College; M.L.S., 1969, Long Island University

*E.K. Fretwell Jr. (1979), *Chancellor and Professor of Educational Leadership and Instruction*, A.B., Wesleyan University; M.A.T., Harvard University; Ph.D., Columbia University

Jill Andrea Friedman (1981), *Lecturer in Political Science*, B.A., Smith College; M.A., M.Phil., Columbia University

*Joseph Pacheco Frizado (1978), *Assistant Professor of Earth Sciences*, B.S., Rensselaer Polytechnic Institute; Ph.D., Northwestern University

*James Terry Frazier (1976), *Assistant Professor of English*, B.A., University of Colorado; M.A., Ph.D., University of Washington

Susan Renee Furr (1980), *Counseling Psychologist and Assistant Professor of Human Services,* B.A., University of North Carolina at Greensboro; M.A., Wake Forest University; Ph.D., University of North Carolina at Chapel Hill

***Owen J. Furuseth, Jr. (1977),** *Assistant Professor of Geography and Earth Sciences,* B.A., M.A., East Carolina University; Ph.D., Oregon State University

***Karl Michael Gabriel (1963),** *Professor of German,* Ph.D., University of Vienna

Michael Audun Gallis (1974), *Associate Professor of Architecture,* B.Arch., University of California at Berkeley; M.Arch., M.C.P., University of Pennsylvania

Bryant LeRoy Galusha (1980), *Adjunct Professor of Nursing,* B.A., West Virginia University; M.D., Western Reserve School of Medicine

Betty Bass Garrison (1975), *Adjunct Lecturer in Nursing,* B.S.N., Medical College of Georgia

***Hallie Leon Gatlin, III (1966),** *Associate Professor of English,* B.A., Wake Forest College; M.A., Ph.D., University of Iowa

***William Carroll Gay (1980),** *Assistant Professor of Philosophy,* B.A., Carson-Newman College; Ph.D., Boston College

Robert Nielsen Gehner (1976), *Associate Professor of Music,* B.Mus., Oberlin College; M.Mus., Manhattan School of Music; M.Mus., Indiana University

Edith Ruth Gelber-Beechler (1981), *Lecturer in English,* B.A., City University of New York; M.A., State University of New York at Binghamton

Robert Yesudian George (1980), *Adjunct Professor of Biology,* B.Sc., Madras Christian College; M.Sc., Presidency College; Ph.D., University of Madras

***Ronald Arthur Gestwicki (1972),** *Associate Professor of Religious Studies,* B.A., University of Buffalo; M.Div., General Theological Seminary; Ph.D., Syracuse University

***Virginia Shaw Geurin (1972),** *Associate Professor of Business Administration,* B.S.B.A., M.B.A., Ph.D., University of Arkansas

***Robert Harry Gibson (1965),** *Chairperson, Department of Chemistry, and Professor of Chemistry,* A.B., Erskine College; M.A., Ph.D., Columbia University

***David Clark Gilmore (1979),** *Associate Professor of Psychology,* B.A., Capital University; M.A., Ph.D., Ohio State University

***Lawrence William Glaum (1978),** *Assistant Professor of Urban and Environmental Engineering,* B.S., M.S., Ph.D., University of Illinois

Robert Boyd Glazer (1976), *Associate Professor of Creative Arts,* B.M.Ed., M.M.Ed., Roosevelt University

***Robert Milnor Gleaves (1969),** *Chairperson, Department of Foreign Languages, and Associate Professor of Spanish,* B.A., David Lipscomb College; M.A., Ph.D., Vanderbilt University

***Jacqueline Laura Gmuca (1978),** *Assistant Professor of English,* B.S.Ed., Clarion State College; M.A., Ph.D., Kent State University

***Lon Howard Godfrey (1975),** *Associate Professor of Accounting,* B.S., Mississippi College; M.Acc., University of Mississippi; Ph.D., University of Alabama; C.P.A.

***Paul Goldstein (1979),** *Assistant Professor of Biology,* B.S., State University of New York at Albany; M.S., Ohio State University; Ph.D., York University

Chesley Sylvester Goldston, II (1981), *Lecturer in Engineering Technology (part-time),* B.S.M.E., M.S., Duke University; P.E.

Cloyd Smith Goodrum, Jr. (1967), *Professor of Mathematics,* B.A.E., Rensselaer Polytechnic Institute; M.A., University of North Carolina at Chapel Hill

***Barbara Ann Goodnight (1967),** *Associate Vice Chancellor for Academic Affairs, Director of Graduate Studies, and Professor of Sociology,* B.S., Texas Woman's University; M.A., Ph.D., Louisiana State University

***Paula Ann Goolkasian (1974),** *Associate Professor of Psychology,* B.A., Emmanuel College; M.S., Ph.D., Iowa State University

Valeria Avery Granger (1981), *Associate Professor of Nursing,* B.S., North Carolina A & T State University; M.Ed., University of North Carolina at Charlotte; Ed.D., Nova University

Ernest Carter Grant (1969), *Associate Professor of Electrical Engineering,* B.S., B.S.E.E., M.S., North Carolina State College; M.S., University of Michigan; P.E.

Frank Stephen Grass (1979), *Adjunct Associate Professor of Biology,* B.A., Butler University; M.S., Ph.D., University of Illinois

***Michael George Green (1978),** *Assistant Professor of Educational Leadership and Instruction,* B.A., University of California at Berkeley; Ed.M., Ed.D., Harvard University

John Alexander Gretes (1982), *Assistant Professor of Educational Leadership and Instruction,* B.S., M.S., Old Dominion University; Ed.D., University of Virginia

***Robert Waters Grey (1969),** *Associate Professor of English,* A.B., Brown University; M.A., University of Virginia

***Douglas Lee Grimsley (1970),** *Chairperson, Department of Psychology, and Professor of Psychology,* B.S., Florida State University; Ph.D., Syracuse University

***Robert Earl Guinn (1976),** *Associate Professor of Accounting,* B.A., Carson-Newman College; M.A., Ph.D., University of Alabama; C.P.A.

Robert Alan Gwaltney (1974), *Dean of Admissions and Records and Lecturer in Educational Leadership and Instruction,* A.B., Elon College; M.A., Appalachian State University

***Carole Robin Haber (1979),** *Assistant Professor of History,* B.A., Washington University; M.A., Ph.D., University of Pennsylvania

Johannes Hackenholt (1981), *Lecturer in Engineering,* Diploma, West German State Technical Institute; M.E., Technical University of Berlin

***Ben Hall Hackney, Jr. (1964),** *Professor of Educational Leadership and Instruction,* A.B., Duke University; M.Ed., D.Ed., University of North Carolina at Chapel Hill

***Yogeshwar Hari (1978),** *Associate Professor of Engineering Analysis and Design,* B.S.M.E., Panjab University; M.S.M.E., Ph.D., Purdue University

Amanda Lou Harmon (1970), *Librarian and Assistant Professor,* B.A., M.S.L.S., Syracuse University

Alan Edward Harms (1978), *Lecturer in Engineering Science, Mechanics, and Materials,* B.S.M.E., University of Florida; M.S.E.M., Virginia Polytechnic Institute and State University

John Gary Harold (1976), *Lecturer in Educational Leadership and Instruction,* B.A., University of Northern Iowa; M.Ed., University of North Carolina at Charlotte; Ph.D., University of North Carolina at Greensboro

***Mary Turner Harper (1971),** *Associate Professor of English,* A.B., Livingstone College; M.Ed., University of North Carolina at Greensboro; Ph.D., Union Graduate School

Emmett Clyde Harris (1980), *Visiting Lecturer in Business Administration,* B.A., Columbia College

***Pauline Mayo Haynes (1976),** *Associate Professor of Nursing,* B.S.N., Oklahoma Baptist University; M.S.N., Case Western Reserve University

***Sue Greenwood Head (1976),** *Associate Professor of Nursing,* A.A., Central Piedmont Community College; B.S., University of North Carolina at Charlotte; M.S.N., University of North Carolina at Chapel Hill

***John Henry Healey (1973),** *Associate Professor of Health and Physical Education,* B.S., M.S., Northern Illinois University; Ph.D., University of Utah

Cecil Wayne Heasley (1981), *Lecturer in Criminal Justice,* A.A., Lees-McRae College; B.S., Central Connecticut State College; M.S., University of Tennessee; M.S., Oklahoma State University; J.D., Washburn University

***James Stoy Hedges (1970),** *Associate Professor of English,* B.S., Purdue University; M.A., Purdue University; Ph.D., University of Nebraska

***John Richard Hedstrom (1970),** *Associate Professor of Computer Science and Mathematics,* B.A., M.A., Ph.D., University of Kansas

***Harold William Heller (1979),** *Dean, College of Human Development and Learning, and Professor of Educational Leadership and Instruction,* B.S., Southern Illinois University; M.S., Northern Illinois University; Ed.D., Colorado State College

Cathy Baker Herbert (1978), *Assistant Professor of Nursing,* B.S., M.S., University of Rhode Island

Lewis Bert Herman (1978), *Librarian and Lecturer,* B.A., University of Tennessee; M.A., San Jose State University

***Maurice Herman (1980),** *Visiting Assistant Professor of Architecture,* B.F.A., California Institute of the Arts; M.Arch., University of California at Los Angeles

Velna Motley Hicks (1976), *Assistant Professor of Sociology,* B.A., Texas Woman's University; M.S.W., University of North Carolina at Chapel Hill

Richard Gordon Higgins, Jr. (1980), *Lecturer in Political Science,* B.A., M.P.A., Syracuse University

***Charles Clinton Hight (1976),** *Dean, College of Architecture, and Professor of Architecture,* B.S.C.E., University of Maryland; B.Arch., Auburn University

***Philip Elwin Hildreth (1967),** *Distinguished Professor of Biology,* A.B., Dartmouth College; M.A., Ph.D., University of California at Berkeley

Helene Ann Hilger (1981), *Lecturer in Urban and Environmental Engineering,* B.A., Rutgers University; B.S.E., University of North Carolina at Charlotte

***Esther Page Hill (1972),** *Associate Professor of Creative Arts,* B.S., M.A., Columbia University

***Susan Jane Hilligoss (1979),** *Lecturer in English,* B.A., University of Michigan; M.A., Ph.D., University of Pennsylvania

***Dolan Ray Hinson (1977),** *Associate Professor of Accounting,* B.S., Pfeiffer College; M.B.A., New York University; Ph.D., University of South Carolina; C.M.A.; C.L.U.

***Mary Alice Hinson (1980),** *Assistant Professor of Architecture,* B.A., Vassar College; M.Phil., Yale University

***Joseph Carroll Hintz (1981),** *Associate Professor of Computer Science,* B.S., Siena College; M.S., Ph.D., Syracuse University

***Joseph David Hirschel (1977),** *Assistant Professor of Criminal Justice,* B.A., Cambridge University; M.A., Ph.D., State University of New York at Albany

Steven Alan Hockfield (1973), *Lecturer in Accounting (part-time),* B.S., J.D., University of North Carolina at Chapel Hill

***Gail McKnight Huffman (1978),** *Acting Chairperson, Department of Educational Leadership and Instruction, and Associate Professor of Educational Leadership and Instruction,* B.Ed., University of Toledo; M.Ed., Ed.D., University of Missouri-Columbia

***Alfred Gerard Holtum (1978),** *Assistant Professor of Electrical Engineering Technology,* B.A., New York University; M.S., Rutgers, The State University; Ph.D., Illinois Institute of Technology

***Edward Warren Hopper (1967),** *Associate Professor of Spanish,* B.A., North Texas State University; A.M., Ph.D., University of Missouri

***Gerald Houghton (1972),** *Professor of Engineering Science,* B.Sc., University of London; M.Sc., Ohio State University; Ph.D., University of London

***Evan Green Houston, Jr. (1974),** *Associate Professor of Mathematics,* B.A., Hendrix College; Ph.D., University of Texas at Austin

***Gary Don Howard (1974),** *Associate Professor of Chemistry,* B.A., Doane College; Ph.D., University of Nebraska

***Jonathan Vernon Hoyle, Jr. (1975),** *Associate Professor of Educational Leadership and Instruction,* B.S., University of Tennessee; M.A.T., Ed.D., University of North Carolina at Chapel Hill

Dawn M. Hubbs (1976), *Librarian and Assistant Professor,* A.B., M.L.S., Indiana University

Charles Bently Humble (1978), *Assistant Professor of Health and Physical Education,* B.S.Ed., Southwest Missouri State University; M.A., Ohio State University; Ph.D., University of Oregon

***Ira Walter Hutchison, III (1977),** *Associate Professor of Sociology,* B.A., Michigan State University; M.A., Ph.D., University of Notre Dame

***Carol Iglauer (1979),** *Librarian and Assistant Professor,* B.A., University of Chicago; M.S., University of Michigan, M.S.L.S., University of Kentucky; Ph.D., University of Michigan

Thomas Aaron Incze (1977), *Assistant Professor of Architecture,* B.A., Yale University; M.Arch., Harvard University

***Gerald Lynn Ingalls (1973),** *Associate Professor of Geography,* B.A., University of Southwestern Louisiana; M.A., University of Florida; Ph.D., Michigan State University

***Scott Christian Iverson (1978),** *Associate Professor of Urban and Environmental Engineering,* B.S., University of California at Davis; M.S., San Jose State University; M.Sc., Dublin University; Ph.D., University of Colorado

***Sallie Middleton Ives (1977),** *Assistant Professor of Geography,* B.A., M.A., University of Maryland; Ph.D., University of Illinois

***Jay Bruce Jacoby (1978),** *Assistant Professor of English,* B.A., University of Cincinnati; M.A., Villanova University; Ph.D., University of Pittsburgh

***Nish A. Jamgotch, Jr. (1966),** *Professor of Political Science,* B.A., M.A., University of Minnesota; Ph.D., The Claremont Graduate School

Rajaram Janardhanam (1980), *Assistant Professor of Urban and Environmental Enginerring,* B.S.E., M.S., Annamalai University; Ph.D., Virginia Polytechnic Institute and State University

John Edward Jenkins (1971), *Lecturer in Engineering Analysis and Design (part-time),* B.Sc., Duke University; M.B.A., Harvard University; Ph.D., University of Edinburgh

***Marinell Hargrove Jernigan (1972),** *Professor of Nursing,* B.S., Johns Hopkins University; M.S., Ed.D., University of Alabama

Eugene Baker Johnson (1974), *Lecturer in Accounting (part-time),* B.S., University of North Carolina at Charlotte

Kay Ann Johnson (1981), *Lecturer in Health and Physical Education,* B.S., Eastern Kentucky University; M.S., Indiana University

***Lyman Lucius Johnson (1972),** *Associate Professor of History,* B.A., Tufts University; M.A., University of Rhode Island; Ph.D., University of Connecticut

***Phillip Eugene Johnson (1971),** *Associate Professor of Mathematics,* B.S., Appalachian State University; M.A., George Peabody College; M.A., American University; Ph.D., George Peabody College

***Robert Stafford Johnson (1980),** *Associate Professor of Economics,* B.A., Thomas More College; M.S., Ph.D., University of Kentucky

***Stephen Alton Jolly (1975),** *Associate Professor of Accounting,* B.S.B.A., Ph.D., University of North Carolina at Chapel Hill; C.P.A.

***Daniel Silas Jones, Jr. (1973),** *Associate Professor of Chemistry,* B.S., Wake Forest College; A.M., Ph.D., Harvard University

***Leon Paul Jorgensen (1970),** *Associate Professor of Economics,* B.B.A., University of Georgia; M.A., University of Washington; Ph.D., Florida State University

***Harold Josephson (1970),** *Professor of History,* B.A., Brooklyn College; M.A., Ph.D., University of Wisconsin

***Yogendra P. Kakad (1976),** *Assistant Professor of Engineering Analysis and Design,* B.S., University of Baroda; M.S., Ph.D., University of Florida

***Michael Edwin Kampen (1978),** *Associate Professor of Creative Arts,* B.A., University of Minnesota; M.A., Tulane University; Ph.D., University of Pennsylvania

Richard Roman-Edward Kania (1980), *Lecturer in Criminal Justice,* B.A., Florida State University; M.A., University of Virginia

Richard Randall Kennedy (1976), *Assistant Professor of Creative Arts,* B.S., M.M., Indiana University

***William Frederick Kennedy (1978),** *Assistant Professor of Business Administration,* B.A., University of Richmond; M.A., Old Dominion University; Ph.D., Virginia Polytechnic Institute and State University

Daryl Lynn Kerr (1979), *Lecturer in Business Administration,* B.A., University of North Carolina at Charlotte; M.A., University of North Carolina at Chapel Hill

Floyd William Kerr (1969), *Director of Intramurals and Lecturer in Health and Physical Education,* B.S., M.A., Appalachian State University

***Rhyn Hyun Kim (1965),** *Associate Professor of Mechanical Engineering,* B.S.M.E., Seoul National University; M.S.M.E., Ph.D., Michigan State University

Frances Rhyne King (1977), *Assistant Professor of Nursing,* B.N.S., University of North Carolina at Chapel Hill; M.Ed., University of North Carolina at Charlotte

***Lee Ellis King (1976),** *Chairperson, Department of Urban and Environmental Engineering, and Professor of Urban and Environmental Engineering,* B.S.C.E., M.C.E., North Carolina State University at Raleigh; D.E., University of California at Berkeley

Martin Roy Kleinman (1978), *Assistant Professor of Architecture,* B.Arch., Pratt Institute; M.Arch., Cornell University

***Sally Ann Kochendofer (1974),** *Assistant Professor of Human Services,* B.S., M.S., State University of New York at Plattsburgh; Ph.D., Indiana State University

Felipe E. Kohn (1981), *Lecturer in Mathematics,* B.S., Universidad Nacional; M.S., University of Cincinnati

Shirley Ann Kotlarz (1975), *Adjunct Assistant Professor of Nursing,* B.S.N., Medical College of Georgia; M.N., Emory University; R.N.

***John Francis Krol (1980),** *Lecturer in Sociology,* A.B., Bowdoin College; M.A., University of Delaware

***James Richard Kuppers (1964),** *Professor of Chemistry,* B.S., University of Florida; M.S., Louisiana State University; Ph.D., University of Florida

Melvyn William Labovitz (1980), *Visiting Lecturer in Business Administration,* B.B.A., University of Pittsburgh; M.B.A., St. John's University

***Peter Andre Lamal (1970),** *Associate Professor of Psychology,* B.A., St. Thomas College; M.A., Indiana State University; Ph.D., University of Wisconsin

***Alan Leslie Lambert (1974),** *Associate Professor of Mathematics,* B.S., M.S., University of Miami; Ph.D., University of Michigan

***Larry Michael Lance (1970),** *Associate Professor of Sociology,* B.A., M.A., Bowling Green State University; Ph.D., Purdue University

Deborah Michael Langsam (1980), *Instructor in Biology,* B.S., Brooklyn College; M.A., City University of New York

Jerry Powell Lanier (1980), *Lecturer in History,* B.A., Pembroke State University; M.A., University of North Carolina at Chapel Hill

Robert Crosby Latham (1980), *Lecturer in Engineering Technology (part-time),* B.S., University of Tennessee; M.E., University of South Carolina

***James Alan Latimore (1976),** *Assistant Professor of Sociology,* B.A., M.A., Ph.D., City College of New York

***Jane Katherine Laurent (1979),** *Assistant Professor of History,* B.A., M.A., University of Georgia; Ph.D., Brown University

Nancy Caroline Lawrence (1980), *Librarian and Assistant Professor,* B.A., Memphis State University; M.S., Florida State University

Michael Hubers Leakan (1978), *Adjunct Lecturer in Medical Technology,* B.A., Loyola University; M.D., University of Maryland

***Miriam Almaguer Leiva (1968),** *Associate Professor of Mathematics,* B.S., Guilford College; M.A., University of North Carolina at Chapel Hill; Ph.D., Union Graduate School

John Barry Lesley (1970), *Director of Academic Contracts and Grants and Lecturer in Accounting,* A.B., Pfeiffer College; M.B.A., University of Florida

***Janet E. Levy (1980),** *Assistant Professor of Anthropology,* A.B., Brown University; M.A., Ph.D., Washington University

***Tze Fen Li (1981),** *Assistant Professor of Mathematics,* B.S., Chung Hsinh University; M.S., West Virginia University; Ph.D., North Carolina State University at Raleigh; Ph.D., Michigan State University

***Morris Mouyung Liaw (1981),** *Assistant Professor of Computer Science and Mathematics,* B.S., Chung Yuan College of Science and Engineering; M.S., Ph.D., North Texas State University

***John Mitchell Lincourt (1973),** *Associate Professor of Philosophy,* B.A., St. Anselm's College; M.A., Niagara University; Ph.D., State University of New York at Buffalo

***Gaines Howard Liner (1971),** *Associate Professor of Economics,* B.S., North Carolina State University at Raleigh; M.S., Ph.D., Clemson University

Cheng Liu (1970), *Associate Professor of Civil Engineering Technology,* B.S.C.E., National Taiwan University; M.S.C.E., West Virginia University; P.E.

***Kathleen Kalani Loewy (1979),** *Assistant Professor of Political Science,* B.A., M.L.S., University of California at Los Angeles; M.P.A., Ph.D., University of Southern California

***Gary Thomas Long (1972),** *Associate Professor of Psychology,* B.A., Wake Forest University; M.S., North Carolina State University at Raleigh; Ph.D., University of Waterloo

***Jerry Dennis Lord (1970),** *Associate Professor of Geography,* B.A., M.A., Ph.D., University of Georgia

Robert Edmund Lover (1980), *Lecturer in Mathematics,* B.A., Kalamazoo College; M.A., Miami University; M.A., Ph.D., Case Western Reserve University

Jan Brooks Loyd (1977), *Assistant Professor of Creative Arts,* A.A., Texas Woman's University; B.A., M.F.A., Southern Illinois University

Paul C.K. Lu (1979), *Professor of Architecture,* B.S., Chung-Kung University; B.Arch., M.Arch., Kansas State University; M.L.Arch., Harvard University

John Paul Lucas (1977), *Assistant Professor of Architecture,* B.Arch., University of Maryland; M.Arch., North Carolina State University at Raleigh

***Thomas Ramsey Lucas (1969),** *Associate Professor of Mathematics,* B.S., University of Florida; M.S., University of Michigan; Ph.D., Georgia Institute of Technology

Charles Farrell Lynch (1973), *Dean of Students and Lecturer in Human Services,* B.A., C.W. Post College; M.Ed., University of Miami

***James Edward Lyons (1979),** *Assistant Professor of Educational Leadership and Instruction,* B.S., 1968, Elizabeth City State University; M.A., 1972, East Carolina University; Ph.D., 1978, Ohio State University

Michael Joseph Lyons (1981), *Lecturer in Psychology,* B.A., C.W. Post College; M.A., University of Louisville

***Schley Roosevelt Lyons (1969),** *Associate Dean, College of Arts and Sciences, and Professor of Political Science,* B.S., B.A., Shepherd College; M.A., Ph.D., American University

Roderick Macy MacKillop (1973), *Associate Professor of Art,* A.B., M.F.A., Tufts University

***Robert John MacLean (1981),** *Associate Professor of Architecture,* B.Arch., University of California at Berkeley; M.Arch., University of California at Los Angeles

***Joseph Darryl McCall, Jr. (1964),** *Professor of English,* A.B., M.A., Ph.D., University of Florida

***William Joseph McCoy (1970),** *Associate Professor of Political Science,* A.B., M.A., Western Kentucky University; Ph.D., University of Tennessee

John Erle McDonald, Jr. (1981), *Visiting Assistant Professor of Business Administration,* A.B., Davidson College; J.D., University of Michigan

***James Holt McGavran, Jr. (1973),** *Associate Professor of English,* B.A., The College of Wooster; M.A., Columbia University; Ph.D., University of North Carolina at Chapel Hill

James Ray McGee (1977), *Adjunct Lecturer in Medical Technology,* B.S., Florida Southern College; M.T.

James Olen McGhee (1981), *Lecturer in Architecture (part-time),* B.E.D., North Carolina State University at Raleigh; B.Arch., University of North Carolina at Charlotte

Patricia Bays McLaney (1976), *Assistant Professor of Creative Arts,* B.A., Pennsylvania State University; M.A., State University of New York at Binghamton

Charles Vance McLaughlin (1981), *Lecturer in Criminal Justice,* B.S., Pennsylvania State University; M.S., Florida State University

***Jonnie Horn McLeod (1975),** *Professor of Human Services,* B.A., Sophie Newcomb College; M.D., Tulane University

***Ralph O. McLeod (1970),** *Assistant Professor of Spanish,* B.Ed., University of Toledo; M.A.T., Ph.D., University of New Mexico

***John Rupert McNair (1978),** *Assistant Professor of English,* A.A., University of Southern Colorado; B.S., Colorado State University; M.A., Ph.D., University of Colorado

Jeanne Margaret McNally (1975), *Adjunct Professor of Nursing,* B.S.N., M.S., Ph.D., Catholic University

***Ronald Andrew Madsen (1977),** *Associate Professor of Economics,* B.S., University of Illinois; M.B.A., D.B.A., Arizona State University

***Albert Anthony Maisto (1977),** *Associate Professor of Psychology,* A.A., Mercer College; B.A., Murray State University; M.A., Ph.D., University of Alabama

***Salimah Majeed (1981),** *Lecturer in Social Work,* B.A., Carleton College; M.S., Boston University

***Edward George Malmgren (1976),** *Associate Professor of Accounting,* B.A., Lake Forest College; M.S., Ph.D., University of Iowa; C.P.A.

Walter Eugene Martin (1979), *Lecturer in Geography and Earth Sciences,* B.S., M.A., East Carolina University

***Julian Dewey Mason (1966),** *Chairperson, Department of English, and Professor of English,* A.B., University of North Carolina at Chapel Hill; M.A., George Peabody College for Teachers; Ph.D., University of North Carolina at Chapel Hill

Thomas Nelson Masters (1978), *Adjunct Professor of Biomedical Engineering,* B.S., Eastern Illinois University; Ph.D., Loyola University

***William Stephan Mathis (1967),** *Professor of Music,* B.Mus., Stetson University; M.Mus., University of Michigan; Ph.D., Florida State University

***James Francis Matthews (1964),** *Professor of Biology,* A.B., Atlantic Christian College; M.S., Cornell University; Ph.D., Emory University

Barbara Reichel Mattingly (1979), *Lecturer, English Language Training Institute,* B.A., College of St. Catherine; M.A., Yale University

***Thomas William Mattingly, Jr. (1974),** *Associate Professor of Chemistry,* B.S., Georgetown University; Ph.D., Yale University

***Ruth Nichols Mauldin (1970),** *Associate Professor of Nursing,* B.S., Duke University; M.S., University of Alabama

Bertha Lyons Maxwell (1978), *Director, Afro-American and African Studies Program, and Frank Porter Graham Professor of Afro-American and African Studies,* B.A., Johnson C. Smith University; M.A., University of North Carolina at Greensboro; Ph.D., Union Graduate School

***Terrill Wayne Mayes (1967),** *Associate Professor of Physics,* B.S., Western Kentucky University; M.A., Ph.D., Vanderbilt University

***Timothy Dean Mead (1979),** *Associate Professor of Political Science,* A.B., M.A., Ph.D., George Washington University

Michele Giorgio Melaragno (1974), *Professor of Architecture,* Liceale Classica, Collegio Nazareno; Doctor of Civil Engineering, University of Bari

***Thomas Lawrence Mellichamp (1976),** *Assistant Professor of Botany-Horticulture,* B.S., University of North Carolina at Charlotte; M.S., Ph.D., University of Michigan

***Billy Frank Melton (1971),** *Associate Professor of Physics,* B.S., Ph.D., Oklahoma State University

***Edward Fulton Menhinick (1965),** *Professor of Biology,* B.A., Emory University; M.S., Cornell University; Ph.D., University of Georgia

***Charles Seeley Merrill (1969),** *Associate Professor of German,* B.A., M.A., North Texas State University; Ph.D., University of Texas at Austin

***Jorge Mescua (1981),** *Associate Professor of Engineering Analysis and Design,* B.S., Universidad Nacional de Ingenieria; M.S., University of Michigan; Ph.D., University of Florida

***Jeffrey Frederick Meyer (1973),** *Associate Professor of Religious Studies,* B.A., Duns Scotus College; M.A., University of Dayton; M.A., Ph.D., University of Chicago

***Raymond Joseph Michalowski (1973),** *Associate Professor of Sociology,* A.B., M.A., Fordham University; Ph.D., Ohio State University

***Joseph Jerome Miller (1978),** *Assistant Professor of Business Administration,* B.S., Pennsylvania State University; LL.M., College of William and Mary; J.D., Samford University

***Martha LaFollette Miller (1976),** *Associate Professor of Spanish,* B.A., Smith College; M.A., University of Wisconsin; Ph.D., Washington University

Charles Edward Mobley, Jr. (1972), *Associate Professor of Industrial Engineering Technology,* B.S.I.E., M.S.I.E., Mississippi State University; P.E.

***Abolhassan Modaress-Razavi (1980),** *Visiting Assistant Professor of Engineering Analysis and Design,* B.S., M.S., Ph.D., West Virginia University

***Ganesh P. Mohanty (1972),** *Professor of Engineering Science,* B.Sc., Utkal University; M.S., Michigan Technological University; Ph.D., Illinois Institute of Technology

***Mark Dreier Montgomery (1977),** *Assistant Professor of Educational Leadership and Instruction,* B.A., Wake Forest University; M.A., George Washington University; Ph.D., University of North Carolina at Chapel Hill

Irvin Moore, Jr. (1978), *Assistant Professor of Sociology,* B.S., North Carolina A & T State University; M.S.W., Washington University

Martha McManus Moore (1980), *Assistant Professor of Nursing,* B.S.N., Duke University; M.S.N., University of North Carolina at Greensboro; R.N.

Thomas Bruce Moore (1976), *Assistant Professor of Architecture,* A.A., St. Peters Junior College; B.D., M.Arch., University of Florida

***Roy Clifton Moose (1963),** *Professor of English,* B.A., University of North Carolina at Chapel Hill; B.A., M.A., Oxford University; Ph.D., University of North Carolina at Chapel Hill

Jean Kauffman Morgan (1978), *Instructor in English,* B.A., Lebanon Valley College; M.A., University of Maryland

***Dorlan Dean Mork (1972),** *Director, Learning Resources Center, and Lecturer in Educational Leadership and Instruction,* B.A., Luther College; M.A., Western Carolina University; D.Ed., University of Florida

***Dan Lincoln Morrill (1963),** *Professor of History,* B.A., Wake Forest College; M.A., Ph.D., Emory University

Stephen Charles Morse (1980), *Lecturer in Economics,* B.S., M.S., University of Georgia

Lucille Nasser Moses (1979), *Assistant Professor of Nursing,* B.S., M.Ed., University of North Carolina at Charlotte

Michael Mosley (1971), *Associate Professor of Creative Arts,* B.Mus., Hardin-Simmons University, M.Mus., Indiana University

***Anita West Moss (1977),** *Assistant Professor of English,* B.A., Lambuth College; M.A., Memphis State University; Ph.D., Indiana University

***Arthur Broadus Moss (1978),** *Professor of Business Administration,* B.A., University of North Carolina at Chapel Hill; M.B.A., Columbia University; D.B.A., Harvard University

Frada Lynn Mozenter (1981), *Librarian and Assistant Professor,* A.B., Temple University; M.A., University of Arizona; M.S.L.S., Drexel University

***Robert John Mundt (1972),** *Chairperson, Department of Political Science, and Associate Professor of Political Science,* A.B., University of South Dakota; M.A., Ph.D., Stanford University

***Harvey Frank Murphy (1965),** *Chairperson, Department of Health and Physical Education, and Professor of Health and Physical Education,* B.S., Troy State College; M.A., Columbia University; Ph.D., University of Illinois

***Richard Eugene Neel (1978),** *Dean, College of Business Administration, and Professor of Economics,* B.S., M.S., University of Tennessee; Ph.D., Ohio State University

John Arthur Nelson (1976), *Assistant Professor of Architecture,* B.Arch.; M.Arch., Kent State University

Ann Mabe Newman (1981), *Instructor in Nursing,* B.S.N., University of North Carolina at Charlotte; M.S.N., 1980, University of North Carolina at Chapel Hill

***Anne Royall Newman (1968),** *Associate Professor of English,* B.A., University of South Carolina; M.A., University of Iowa; Ph.D., University of South Carolina

***Nilo Anthony Niccolai (1970),** *Associate Professor of Mathematics,* B.S., M.S., Ph.D., Carnegie-Mellon University

***Sally Winn Nicholson (1974),** *Professor of Nursing,* B.S.N., University of North Carolina at Chapel Hill; M.N., Emory University; Ph.D., University of Maryland

***David Eugene Nixon (1963),** *Professor of Mathematics,* B.S., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

Bennie Harold Nunnally, Jr. (1979), *Assistant Professor of Business Administration,* B.A., Virginia Union University; M.B.A., Atlanta University; D.B.A., University of Virginia

***Nelson Rudolph Nunnally (1974),** *Professor of Geography and Earth Sciences,* B.S., M.A., University of Georgia; Ph.D., University of Illinois

***Edward Samuel Oberhofer (1967),** *Chairperson, Department of Physics, and Associate Professor of Physics,* B.S., North Carolina State College; M.S., Ph.D., North Carolina State University at Raleigh

Thomas Johnson O'Brien (1978), *Assistant Professor of Business Administration,* A.B., Davidson College; M.B.A., University of Pennsylvania; Ph.D., University of Florida

Gary Lynn Odom (1981), *Lecturer in Accounting,* B.S., Francis Marion College; M.B.A., University of South Carolina

***James David Oliver (1974),** *Associate Professor of Biology,* B.S., University of Arizona; Ph.D., Georgetown University

Lola Ann Olsen (1980), *Lecturer in Earth Sciences,* B.S., Michigan State University; M.A., University of North Carolina at Charlotte

Janis Brittain Orinson (1979), *Lecturer in Mathematics,* B.A., Lenoir Rhyne College

*Douglas Milton Orr, Jr. (1968), *Vice Chancellor for Research and Public Service and Professor of Geography*, B.A., Davidson College; M.B.A., Ph.D., University of North Carolina at Chapel Hill

*Ronald Stephen Ostrowski (1971), *Associate Professor of Biology*, A.A., Wright Junior College; B.S., M.S., Northern Illinois University; Ph.D., University of Notre Dame

*Christie Hawkins Paksoy (1978), *Assistant Professor of Business Administration*, B.S., University of Tennessee; M.S., Ph.D., University of Alabama

*Allan Van Palmer (1968), *Professor of Economics and Business Administration*, B.S., Iowa State University; M.B.A., Ph.D., University of North Carolina at Chapel Hill

*Alexander Spero Papadopoulos (1978), *Associate Professor of Mathematics*, B.S., M.S., University of Rhode Island; M.S., Ph.D., Virginia Polytechnic Institute and State University

Frank Erlescourt Parker, Jr. (1972), *Lecturer in Human Services*, B.S., Belmont Abbey College; M.A., Fisk University

*Denise Cortis Park (1977), *Assistant Professor of Psychology*, A.B., Albion College; Ph.D., State University of New York at Albany

*William Macfarlane Park (1972), *Director, Foreign Language Laboratory, and Assistant Professor of German*, M.A., University of Edinburgh; Ph.D., University of Colorado

Vernon Ray Parrish, Jr. (1973), *Associate Dean of Students, Director of Cone University Center, and Lecturer in Human Services*, A.A., Wingate College; B.A., Lenoir-Rhyne College; M.A., New York University

*Susan Margaretha Parry (1979), *Counseling Psychologist and Assistant Professor of Human Services*, B.A., Michigan State University; M.A., University of Chicago; Ph.D., Michigan State University

*Karl David Patterson (1971), *Professor of History*, B.S., M.A., Syracuse University; Ph.D., Stanford University

*Michael Andrew Pearson (1977), *Assistant Professor of Sociology*, B.S., M.A., Ph.D., Florida State University

Edna Lorraine Penninger (1968), *Librarian and Associate Professor*, B.A., Flora MacDonald College; M.A., University of Denver

*Edward Spaulding Perzel (1965), *Chairperson, Department of History, and Professor of History*, B.A., M.A., University of Cincinnati; Ph.D., Rutgers, The State University

*Susan Elizabeth Peters (1979), *Assistant Professor of Biology*, B.S., M.S., Northern Arizona University; Ph.D., University of California at Davis

*Byron Petrakis (1973), *Associate Professor of English*, B.A., Colby College; M.A., Ph.D., University of Florida

Nancy Pfingstag (1981), *Lecturer, English Language Training Institute*, B.A., State University of New York at Binghamton; M.A., University of North Carolina at Charlotte

*Daniel John Pleasants, Jr. (1969), *Associate Professor of Educational Leadership and Instruction*, A.B., M.A.T., Ph.D., University of North Carolina at Chapel Hill

*Victor Louis Pollak (1968), *Professor of Physics*, B.Sc., Case Institute of Technology; Ph.D., Washington University

Judy Ponthieu-Black (1981), *Visiting Assistant Professor of Business Administration*, B.A., M.A., North Texas State University; Ph.D., Texas Tech University

David Bruce Post (1979), *Lecturer in Accounting (part-time),* B.S., University of North Carolina at Chapel Hill; J.D., Duke University; C.P.A.

***Douglas Fuller Powers (1970),** *Distinguished Professor of Human Services,* B.S., Tennessee Technological University; M.S., University of Virginia; M.D., Baylor University; M.Ed., University of North Carolina at Charlotte

Lamar Joseph Powers (1978), *Lecturer in Engineering Technology (part-time),* A.A., St. Johns River Junior College; B.B.C., M.S.B.C., University of Florida

***Judith Louise Presler (1970),** *Associate Professor of Philosophy,* A.B., Baldwin-Wallace College; Ph.D., University of Oklahoma

Edward Pressman (1978), *Assistant Professor of Architecture,* B.Arch., Western Reserve University; M.Arch., Massachusetts Institute of Technology

***Frank Steele Preston (1977),** *Lecturer in Engineering Analysis and Design,* B.S.E.E., University of Washington; M.S.E.E., Massachusetts Institute of Technology

Edward Kent Prewitt, Jr. (1977), *Lecturer in Accounting (part-time),* B.S., Hampden-Sydney College; M.B.A., University of North Carolina at Chapel Hill

Karen Borman Priebe (1979), *Lecturer in Mathematics,* B.S., Valparaiso University; M.S., Northwestern University

Ronald Lee Preibe (1970), *Associate Professor of Mechanical Engineering Technology,* B.S.M.E., Valparaiso University; M.S.M.E., University of Illinois; P.E.

***John Thomas Puglisi (1978),** *Assistant Professor of Psychology,* B.A., Catholic University; M.A., Ph.D., Ohio State University

***Gerald Frederic Pyle (1980),** *Professor of Geography and Earth Sciences,* B.A., Kent State University; M.A., Ph.D., University of Chicago

***Joseph Edward Quinn (1971),** *Associate Professor of Mathematics,* B.S., University of Dayton; Ph.D., Michigan State University

William Earl Rackley (1970), *Associate Professor of Speech and Theater,* A.B., East Carolina College; M.A., Pennsylvania State University

Jaime Danilo Ramirez (1975), *Lecturer in Engineering Technology (part-time)*

Zbigniew Weislaw Ras (1981), *Visiting Associate Professor of Mathematics,* M.A., Ph.D., Warsaw University

Lee Edward Reading (1977), *Director, Venture Program, and Lecturer in Arts and Sciences,* B.A., Macalester College; M.S., Mankato State University

Gopal B. Reddy (1981), *Lecturer in Engineering,* B.E., Osmania University; M.S., Texas Tech University

***Roland Lee Reed (1975),** *Associate Professor of Theater,* B.A., University of Missouri at Columbia; M.A., University of Iowa; Ph.D., University of Nebraska

***Terence John Reed (1981),** *Assistant Professor of Computer Science,* B.A., M.A., Rice University; Ph.D., University of Minnesota

***Robert Charles Reimer (1971),** *Associate Professor of German,* B.A., University of Wisconsin; M.A., Ph.D., University of Kansas

Betty Baker Reiter (1979), *Lecturer in Mathematics,* B.A., University of North Carolina at Greensboro; M.S., Clemson University; M.S., University of Hawaii

***Harold Braun Reiter (1972),** *Associate Professor of Mathematics,* B.S., Louisiana State University; M.S., Ph.D., Clemson University

***George Seymour Rent (1972),** *Chairperson, Department of Sociology and Anthropology, and Associate Professor of Sociology,* A.B., Marietta College; M.A., University of Delaware; Ph.D., Florida State University

***Terrel Lee Rhodes (1980),** *Assistant Professor of Political Science,* B.A., Indiana University; M.A., Ph.D., University of North Carolina at Chapel Hill

Joseph Henry Riddick, Jr. (1974), *Adjunct Lecturer in Medical Technology,* M.D., Duke University

***Robert William Rieke (1962),** *Professor of History,* B.A., Carleton College; M.A., Ph.D., University of Wisconsin

***Roberta D. Riley (1976),** *Associate Professor of Educational Leadership and Instruction,* B.S.Ed., West Chester State College; M.Ed., Ed.D., Temple University

***Donald Paul Rillema (1973),** *Associate Professor of Chemistry,* A.B., Hope College; Ph.D., Michigan State University

Clayton Allen Robarchek (1981), *Adjunct Lecturer in Anthropology,* B.A., University of Nebraska; Ph.D., University of California at Riverside

Stephanie S. Robbins (1981), *Visiting Assistant Professor of Business Administration,* A.A., Lasell Junior College; B.A., Emerson College; M.Ed., Memphis State University; Ph.D., University of Alabama

Randall May Robeson (1981), *Librarian and Assistant Professor,* B.A., Memphis State University; M.L.S., University of Illinois

***Bryan Eugene Robinson (1977),** *Associate Professor of Human Services,* B.A., East Carolina University; M.Ed., University of North Carolina at Charlotte; Ph.D., University of North Carolina at Greensboro

***Joseph Bernard Roberts (1973),** *Associate Professor of Educational Leadership and Instruction,* B.A., University of Puerto Rico; M.A., University of Illinois; Ed.D., Columbia University

Francis Robicsek (1977), *Adjunct Professor in Anthropology and Biomedical Engineering,* M.D., University of Budapest Medical School

***Edwin Lee Rogers (1966),** *Associate Professor of Economics,* A.B., Lenoir Rhyne College; Ph.D., University of North Carolina at Chapel Hill

Mary Edith Rogers (1978), *Adjunct Associate Professor of Nursing,* B.S., University of North Carolina at Chapel Hill; R.N.

***Benjamin Houston Romine, Jr. (1970),** *Executive Associate for Planning and Operations and Associate Professor of Human Services,* B.A., Florida State University; M.A., Ph.D., Duke University

Ann Louise Ronchetti (1980), *Librarian and Assistant Professor,* A.B., Mount Holyoke College; M.A., 1978, Trinity College; M.L.S., 1979, University of California at Berkeley

***Russell Gene Rose (1969),** *Associate Professor of French,* B.A., Wilmington College; M.A., Ph.D., University of Kentucky

***Terry Lee Rose (1981),** *Assistant Professor of Educational Leadership and Instruction,* A.A., St. Petersburg Junior College; B.A., University of South Florida; M.Ed., Ph.D., University of Florida

Allan F. Ross (1978), *Lecturer in Accounting (part-time),* B.S., M.A., University of South Carolina

Charlynn Ellis Ross (1981), *Lecturer in Speech,* B.S., Appalachian State University; M.A., University of North Carolina at Greensboro

***Walter John Roth (1968),** *Assistant Professor of Mathematics,* B.S., University of Michigan; M.S., Ph.D., University of New Mexico

***Bobbie Haynes Rowland (1969),** *Associate Professor of Human Services,* A.B., M.S., Ph.D., University of North Carolina at Greensboro

***William Townsend Rowe (1980),** *Assistant Professor of History,* A.B., Wesleyan University; M.A., Ph.D., Columbia University

Joyce Miller Ruth (1978), *Assistant Professor of Nursing,* B.S.N., Medical College of Virginia; M.S.N., Virginia Commonwealth University

***Harvey Elliot Sadoff (1971),** *Assistant Professor of Educational Leadership and Instruction,* B.A., M.S.E., Brooklyn College; Ph.D., University of California at Berkeley

***Earl Richard Sage (1973),** *Associate Professor of Business Administration,* B.S.B.A., Ohio State University; M.B.A., Harvard University; Ph.D, Ohio State University

***Edward Byron St. Clair (1970),** *Associate Professor of Religion,* B.A., George Washington University; B.S., Southeastern Seminary; Ph.D., Duke University

***Paul Antonius Saman (1962),** *Professor of French,* Ph.D., Charles University

Robert Morrison Sandarg (1981), *Visiting Assistant Professor of French,* A.B., M.A., Ph.D., University of North Carolina at Chapel Hill

John Winfree Sanders, Jr. (1981), *Lecturer in Accounting (part-time),* B.A., Wake Forest University

Lonnie Delores Sanders (1974), *Assistant Professor of Nursing,* B.S.N., Winston-Salem State University; M.Ed., University of North Carolina at Charlotte; R.N.

***Paul Louis Sandok (1978),** *Assistant Professor of Biology,* B.S., M.S., Ph.D., University of Wisconsin

Mary Louise Sapp (1974), *Lecturer in Educational Leadership and Instruction,* B.A., M.Ed., University of North Carolina at Charlotte

Eric John Sauda (1977), *Assistant Professor of Architecture,* A.B., Princeton University; M.Arch, University of California at Los Angeles

Frederick Paul Schadler (1980), *Lecturer in Economics,* B.S.B.A., Potomac State College; M.B.A., University of North Carolina at Charlotte

***Eugene Carl Schaffer (1976),** *Assistant Professor of Educational Leadership and Instruction,* B.A., M.Ed., Ed.D., Temple University

***Joseph Francis Schell (1964),** *Professor of Mathematics,* B.S., University of Dayton; M.A., Ph.D., Indiana University

***Louise C. Schlachter (1977),** *Dean, College of Nursing, and Professor of Nursing,* B.S., M.A., Ph.D., New York University; R.N.

Nancy Schoeps (1980), *Lecturer in Mathematics,* B.A., Drew University; Ph.D., Syracuse University

***Norman Willard Schul (1967),** *Special Assistant to the Chancellor and Professor of Geography,* B.S., M.A., Miami University; Ph.D., Syracuse University

***Arlo Willard Schurle (1971),** *Associate Professor of Mathematics,* B.A., M.A., Ph.D., University of Kansas

Sidney Schuster (1980), *Lecturer in Physics,* A.B., Temple University; M.A., Brandeis University; Ph.D., Temple University

Peter Martin Schwarz (1978), *Assistant Professor of Economics,* B.S., City College of New York; M.A., Ph.D., Ohio State University

Dorothy Marie Schwobel (1980), *Assistant Professor of Nursing,* A.S., B.S., Hartford College for Women; M.S.N., Case Western Reserve University; R.N.

***Terrence Houser Scout (1974),** *Assistant Professor of Sociology,* B.S., Shippenburg State College; M.A.,Ph.D., University of California at Riverside

***James Winford Selby (1973),** *Associate Professor of Psychology,* B.A., Tulane University; M.A., Ph.D., University of Iowa

Daniel Edwin Seymour (1980), *Lecturer in Engineering Technology (part-time),* B.S.C.E., Clemson University

William Hugh Seymour (1980), *Lecturer in Engineering Technology (part-time),* B.S., Clemson University

***Douglas Stuart Shafer (1978),** *Assistant Professor of Mathematics,* B.S., Carson-Newman College; M.S., Ph.D., University of North Carolina at Chapel Hill

Zu-de Shang (1981), *Adjunct Assistant Professor of Engineering Analysis and Design,* Diploma, Nanjing Radio School; Diploma, Chinese University of Science and Technology; Diploma, Shanghai Foreign Languages Institute

***Morton Shapiro (1964),** *Associate Professor of English,* A.B., M.A., University of Miami; Ph.D., University of Alabama

James William Shelnutt (1978), *Chairperson, Department of Engineering Technology, and Associate Professor of Mechanical Engineering Technology,* B.M.E., General Motors Institute; M.S., Air Force Institute of Technology; P.E.

***James David Shumaker (1972),** *Chairperson, Department of Philosophy, and Professor of Philosophy,* A.B., Pfeiffer College; M.A., Ph.D., Florida State University

Diane Shepard (1981), *Career Development Coordinator and Assistant Professor of Human Services,* B.S., University of Alabama; Ed.S., Ph.D., University of Florida

***Stanley A. Sherry (1980),** *Assistant Professor of Educational Leadership and Instruction,* B.A., M.Ed., Temple University; Ph.D., University of Florida

***William David Siegfried, Jr. (1976),** *Assistant Professor of Psychology,* B.A., Trinity College; M.A., Long Island University; Ph.D., Ohio State University

Joseph William Silver (1980), *Lecturer in Engineering Technology (part-time),* A.A., Pfeiffer College; B.S., North Carolina State University at Raleigh

***Ronald Bernard Simono (1967),** *Director, Counseling Center, and Professor of Psychology,* B.S., St. Norbert College; M.A., Ph.D., University of Wisconsin

Jefferson Lynn Simpson (1972), *Lecturer in Geography and Earth Sciences,* B.A., M.Ed., University of North Carolina at Charlotte

Ann McNally Sink (1981), *Lecturer in Mathematics,* B.A., Duke University; M.S., University of Wisconsin; M.A., University of North Carolina at Charlotte

Walter Joseph Skridulis (1981), *Adjunct Professor of Nursing,* B.S., Loyola University; M.Ed., University of North Carolina at Charlotte; Ph.D., Walden University

***Linda Alt Sloan (1978),** *Assistant Professor of Health and Physical Education,* B.S., Mars Hill College; M.A.T., Ed.D., University of South Carolina

Jill Leech Sloop (1975), *Librarian and Assistant Professor,* B.A., Allegheny College; M.L.S., University of Pittsburgh

*Sarah Smedman (1976), *Assistant Professor of English;* B.A., College of St. Scholastica; M.A., University of Minnesota; Ph.D., Indiana University

*Clarence Edwards Smith, Jr. (1970), *Professor of Educational Leadership and Instruction,* B.S., M.A.T., Ed.D., University of North Carolina at Chapel Hill

Eugene James Smith (1975), *Adjunct Associate Professor of Nursing,* B.S.N.Ed., Seton Hall University; M.P.H., Columbia University; R.N.

Marilyn Greene Smith (1977), *Assistant Professor of Nursing,* A.A., Gardner-Webb College; B.S., University of North Carolina at Charlotte; M.S.N., University of North Carolina at Chapel Hill

Paul Douglas Smith (1980), *Lecturer in Geography and Director, Regional Information System,* B.S., M.A., Michigan State University

William Alexander Smith (1966), *Associate Professor of Engineering Analysis and Design,* A.A., Charlotte Col., B.S., M.S., Clemson College; P.E.

Mary Matthew Snow (1975), *Adjunct Lecturer in Medical Technology,* B.S., University of Maine; M.A.T., University of North Carolina at Chapel Hill; M.T.

*Robert Douglas Snyder (1975), *Dean, College of Engineering, and Professor of Engineering Science,* B.S.M.E., Indiana Institute of Technology; M.S.M.E., Clemson University; Ph.D., West Virginia University

Pamela Anderson Sofras (1976), *Assistant Professor of Creative Arts,* B.F.A., The Julliard School; M.Ed., Lehigh University

*David Sohn (1964), *Associate Professor of Psychology,* B.A., Brooklyn College; Ph.D., University of Texas

*Alexandru Solian (1981), *Associate Professor of Mathematics,* Licentiate, Doctor's Degree, University of Bucharest

*Joseph Richard Spence (1979), *Professor of Art,* B.S., Edinboro State College; M.Ed., D.Ed., Pennsylvania State University

Frederick Howard Spooner (1981), *Visiting Assistant Professor of Educational Leadership and Instruction,* B.S., M.S., Butler University; Ph.D., University of Florida

Travis Leonard Spratlin (1980), *Lecturer in Physics,* B.S., University of Georgia; Ph.D., University of North Carolina at Chapel Hill

*Nickolas Mark Stavrakas (1973), *Associate Professor of Mathematics,* B.S., University of North Carolina at Charlotte; M.S., Ph.D., Clemson University

Ruth Elon Stephenson (1978), *Assistant Professor of Nursing,* B.S.N., M.S.N., Medical College of Georgia

*Thomas Howard Stevenson (1976), *Chairperson, Department of Business Administration, and Associate Professor of Business Administration,* B.S.B.A., M.B.A., Syracuse University; Ph.D., Case Western Reserve University

Martha Lawrence Stewart (1958), *Assistant Professor of Mathematics,* A.B., Winthrop College; A.M., Duke University

*Lee Vernon Stiff (1978), *Assistant Professor of Mathematics,* B.S., University of North Carolina at Chapel Hill; M.A., Pennsylvania State University; M.A., Duke University; Ph.D., North Carolina State University at Raleigh

Martha Ann Strawn (1971), *Associate Professor of Creative Arts,* B.A., Florida State University; M.F.A., Ohio University

*Janice Goldman Stroud (1979), *Assistant Professor of Sociology*, B.A., Reed College; M.A., Ph.D., University of California at Berkeley

*Alfred Wright Stuart (1969), *Chairperson, Department of Geography and Earth Sciences, and Professor of Geography and Earth Sciences*, B.S., University of South Carolina; M.S., Emory University; Ph.D., Ohio State University

Gian Chand Sud (1978), *Professor of Educational Leadership and Instruction*, B.S., M.S., Panjab University; Ph.D., University of Wisconsin

Frances Lovenia Summerville (1968), *Librarian and Assistant Professor*, B.A., St. Andrews Presbyterian College; M.L.S., Peabody College

*Judith Diann Suther (1979), *Professor of French*, B.A., University of Missouri-Columbia; M.A., University of Michigan; Ph.D., University of Missouri-Columbia

Robert Harold Svenson (1978), *Adjunct Professor of Biomedical Engineering*, B.A., Lawrence University; M.D., University of Chicago

Linda Eggeman Swayne (1981), *Assistant Professor of Business Administration*, B.B.A., M.B.A., Stetson University; Ph.D., North Texas State University

*Taz Talley (1980), *Assistant Professor of Earth Sciences*, B.A., Colorado College; Ph.D., University of California at Santa Barbara

John Taylor (1979), *Lecturer in Accounting (part-time)*, B.S., University of North Carolina at Charlotte; C.P.A.

Edward Hickman Teague (1980), *Librarian and Assistant Professor*, B.F.A., University of North Carolina at Chapel Hill; M.A., University of Georgia; M.S.L.S., University of North Carolina at Chapel Hill

*Richard Glenn Tedeschi (1976), *Assistant Professor of Psychology*, B.A., Syracuse University; Ph.D., Ohio University

*William Scott Terry (1976), *Assistant Professor of Psychology*, B.A., Fairfield University; M.S., Ph.D., Yale University

Herman Edward Thomas (1974), *Assistant Professor of Religious Studies*, B.S., North Carolina A & T State University; B.D., Th.M, Duke University; Ph.D., Hartford Seminary Foundation

*Mary Beth Thomas (1980), *Professor of Biology*, B.A., Agnes Scott College; M.A., Ph.D., University of North Carolina at Chapel Hill

William John Thomas (1980), *Lecturer in Mathematics*, A.B., Baldwin-Wallace College; A.M., Ph.D., Case Western Reserve University

Lorna Deepree Tilghman (1981), *Lecturer in English*, B.A., 1972, Millsaps College; M.A.T., 1980, Jackson State University

*Joan Sinclair Tillotson (1973), *Associate Professor of Health and Physical Education*, B.S., State University College of New York; M.A., Ph.D., State University of Iowa

Winston Reed Tite (1980), *Assistant Professor of Creative Arts*, B.S., Weber State College; M.F.A., Arizona State University

*Richard Henry Toenjes (1973), *Assistant Professor of Philosophy*, B.A., M.A., St. Louis University; Ph.D., University of Southern California at Los Angeles

*Ignatius Joseph Toner (1973), *Associate Professor of Psycholgy*, A.B., University of Scranton; M.S., Ph.D., University of Wisconsin

Barbara Ann Torres (1978), *Assistant Dean of Students for Campus Programming and Lecturer in Human Services,* B.S.Ed., Kansas State Teachers College; M.S., Emporia Kansas State College

***James Carlus Travis (1973),** *Associate Professor of Biology,* B.S., M.S., East Texas State College; Ph.D., Texas A & M University

***Wenda Ruth Trevathan (1981),** *Lecturer in Anthropology,* B.A., University of North Carolina at Chapel Hill; M.A., Ph.D., University of Colorado

***Louis Alfred Trosch (1969),** *Associate Professor of Business Administration,* B.A., Bethany College; M.A., George Washington University; J.D., West Virginia University

***Roger Howard Trumbore (1978),** *Chairperson, Department of Biology, and Professor of Biology,* B.S., University of Wisconsin; Ph.D., University of Maryland

Irvin Burchard Tucker, III (1981), *Lecturer in Economics,* B.S., North Carolina State University at Raleigh; M.A., University of South Carolina

***Thomas Coke Turner (1966),** *Chairperson, Department of Accounting, and Professor of Accounting,* B.S., Furman University; M.B.A., University of North Carolina at Chapel Hill; C.P.A.

Thomas George Turner (1970), *Associate Professor of Music,* B. Mus., University of Arizona; M.Mus., University of Montana

Joan Carol Tweedy (1978), *Assistant Professor of Creative Arts,* B.F.A., Syracuse University; M.F.A., Alfred University

Raymond Joseph Twery (1980), *Lecturer in Mathematics,* B.S., A.M., University of Illinois

***Richard Arnold Underwood (1975),** *Chairperson, Department of Religious Studies, and Professor of Religious Studies,* B.A., DePauw University; B.D., S.T.M., Ph.D., Drew University

***Christine Wallgren Vance (1974),** *Assistant Professor of French,* C.E.L.G., Universite de Paris et Lille; License-es-Lettres, Universite d'Alger-Aix-en-Provence; Licence-es-Lettres, Universite de Paris-Sorbonne; M.A., Ph.D., Vanderbilt University

***Lynette Bridget Varn (1981),** *Lecturer in English,* A.B., Lenoir-Rhyne College; M.A., Ph.D., University of South Carolina

***Lazaros Anastasios Varnas (1968),** *Professor of English,* Certificate, British Institute; M.A., Ph.D., University of Pennsylvania

***Robert Garrison Venn (1980),** *Visiting Assistant Professor of Architecture,* B.A., Domincan College; M.A., M.F.A., University of Notre Dame

***Robert Everett Vermillion (1965),** *Professor of Physics,* A.B., King College; M.S., Ph.D., Vanderbilt University

Maria Luisa Villa (1981), *Adjunct Lecturer in Sociology,* B.A., Universidad Javenana; M.A., Universidad de los Andes

***Ronald E. Vogel (1980),** *Assistant Professor of Criminal Justice,* B.A., Western New England College; M.Ed., Springfield College; Ed.D., University of Massachusetts

***Dean Bryant Vollendorf (1976),** *Associate Professor of Architecture,* B.S. Arch., University of Cincinnati; M. Arch. Clemson University

***Dale Gerard Wachowiak (1972),** *Counseling Psychologist and Associate Professor of Psychology,* A.B., University of Detroit; M.A., University of Toledo; Ph.D., Southern Illinois University

***Wayne Arthur Walcott (1970),** *Associate Professor of Geography,* B.S., Western Michigan University; M.A., Ph.D., University of Illinois at Urbana-Champaign

Allie Wall (1981), *Lecturer, English Language Training Institute,* B.A., M.A., University of South Carolina; M.A., Georgetown University

G. Guy Wallace (1981), *Distinguished Lecturer in Accounting,* B.S., Northwestern University; C.P.A.

***Edward Lowery Walls, Jr. (1971),** *Rush S. Dickson Professor of Finance,* B.S., University of Maryland; M.A., University of Nebraska; D.B.A., Harvard University

***Thomas David Walsh (1970),** *Associate Professor of Chemistry,* A.B., University of Notre Dame; Ph.D., University of California at Berkeley

Pao-lien Wang (1976), *Assistant Professor of Mechanical Engineering Technology,* B.S., National Cheng Kung University; M.S., New Mexico State University

Robert Andrew Warner (1980), *Research Associate in Biology,* B.S., M.S., Texas A & M University

Albert Samuel Warren (1980), *Lecturer in Engineering Technology (part-time),* B.S., Northeastern University

***Samuel Dibble Watson, Jr. (1973),** *Associate Professor of English,* B.A., Wofford College; M.A., University of Virginia; Ph.D., University of Iowa

Warren Edwin Watson (1980), *Assistant Professor of Business Administration,* B.A., Texas Tech University; M.S., East Texas State University; Ph.D., University of Oklahoma

***John Albert Watts (1979),** *Assistant Professor of Biology,* B.A., Drew University; Ph.D., University of Maryland

***Burton Howard Wayne (1964),** *Chairperson, Department of Engineering Analysis and Design, and Professor of Engineering Analysis and Design,* B.S., Michigan State College; M.S., Ph.D., Michigan State University

Ann Tutrinoli Weber (1980), *Librarian and Lecturer (half-time),* B.A., College of New Rochelle; M.L.S., State University of New York at Albany

***Barnet M. Weinstock (1977),** *Chairperson, Department of Mathematics, and Professor of Mathematics,* A.B., Columbia College; Ph.D., Massachusetts Institute of Technology

James H. Werntz, Jr. (1981), *Vice Chancellor for Academic Affairs and Professor of Physics,* B.A., Oberlin College; M.S., Ph.D., University of Wisconsin

***Cora Lee Wetherington (1975),** *Assistant Professor of Psychology,* B.A., M.A., Ph.D., University of North Carolina at Greensboro

Curtis Ronald Whalen (1978), *Director of Student Financial Aid and Lecturer in Human Services,* B.S., M.Ed., Memphis State University

***Charles Robertson Whaley (1974),** *Assistant Professor of Educational Leadership and Instruction,* A.B., Princeton University; M.A.T., University of North Carolina at Chapel Hill; Ph.D., University of Texas at Austin

James Daniel White, Jr. (1971), *Instructor in Religion,* B.A., Campbell College

***Bruno John Wichnoski (1974),** *Associate Professor of Mathematics,* B.S., Drexel University; M.S., Ph.D., Tulane University

Judith Anita Wilkins (1975), *Coordinator of Women's Athletics and Lecturer in Health and Physical Education,* B.S., Winthrop College; M.S., University of Tennessee

***Robert George Williams (1968),** *Associate Professor of Economics and Business Administration,* B.A., Ohio Wesleyan University; M.B.A., J.D., Indiana University

Sadie Hamrick Williamson (1971), *Associate Professor of Accounting,* A.B., The Woman's College of The University of North Carolina; M.S., University of North Carolina at Chapel Hill; C.P.A.

Edward Martin Willis (1976), *Associate Professor of Civil Engineering Technology,* B.S., U.S.M.A., West Point; M.S.C.E., Massachusetts Institute of Technology; P.E.

***George Windholz (1971),** *Assistant Professor of Psychology,* B.A., City College of New York; M.A., Ph.D., Columbia University

Keith Gordon Wisdom (1981), *Visiting Assistant Professor of Creative Arts,* B.S., Mankato State University; M.F.A., University of Georgia

***Loy Hahn Witherspoon (1964),** *Professor of Philosophy and Religion,* A.B., B.D., Duke University; Ph.D., Boston University

Theodore Peter Wolters (1981), *Lecturer in Economics,* B.S.B.A., M.S., University of North Dakota

Hazel Drye Wright (1966), *Assistant Professor of Mathematics,* B.S., Appalachian State Teachers College; M.A., Wake Forest College

Kenneth E. Wright (1981), *Lecturer in Health and Physical Education,* B.S., Eastern Kentucky University; M.S., Syracuse University

***John Eveleth Wrigley (1970),** *Interim Chairperson, Department of Creative Arts, and Professor of History,* A.B., M.A., St. Charles Seminary; M.A., Ph.D., University of Pennsylvania

***Jy Shing Wu (1980),** *Visiting Assistant Professor of Urban and Environmental Engineering,* B.S., National Taiwan University; M.S., Asian Institute of Technology; Ph.D., Rutgers University

***William David Wubben (1963),** *Professor of Economics and Business Administration,* B.Ph., M.B.A., University of Chicago; Ph.D., The Claremont Graduate School

***Daniel Franklin Wunk (1980),** *Assistant Professor of Engineering Analysis and Design,* B.E.E., Rensselaer Polytechnic Institute; Ph.D., University of California at Berkeley

Alvin Chi Yin (1981), *Lecturer in Architecture (part-time),* B.F.A., Virginia Commonwealth University

Curtis James John Young (1976), *Assistant Professor of Civil Engineering Technology,* B.S.C.E., M.E.C.E., Rensselaer Polytechnic Institute; P.E.

Gerda Anna Maria Zimmermann (1974), *Associate Professor of Creative Arts,* Diplom-Gymnastikleherin, Schule fuer Gymnastiklehrerin; Certificate, Schul fuer Theatertanz; Certificate, School of Fine Arts (Germany)

David John Zaehringer (1980), *Librarian and Assistant Professor,* B.A., Loras College; M.S., Columbia University

Richard Allen Zuber (1978), *Assistant Professor of Economics,* B.A., Wake Forest University; Ph.D., University of Kentucky

Theresa Ann Zweber (1980), *Assistant Professor of Nursing,* B.S.N., College of Mt. St. Vincent; M.A., New York University; R.N.

Emeritus Faculty

Ruth Blackwelder (1962), *Associate Professor of History Emeritus,* A.B., Wittenberg College; M.A., University of North Carolina at Chapel Hill

Edith Perryman Brocker (1965), *Dean Emeritus, College of Nursing,* B.S.P.N., University of North Carolina at Chapel Hill; A.M., University of Chicago; R.N.

Newell Richard Bush (1967), *Professor of French Emeritus,* A.B., Miami University; M.A., Ph.D., Columbia University

Dean Wallace Colvard (1966), *Chancellor Emeritus,* B.S., Berea College; M.A., University of Missouri; Ph.D., Purdue University

Bonnie Ethel Cone (1946), *Vice Chancellor Emeritus,* B.S., Coker College; A.M., Duke University

William Barnette Harold Corkey (1961), *Assistant Professor of Philosophy and Religion Emeritus,* B.A., Queen's University; M.A., University of North Carolina at Chapel Hill

Herbert Hechenbleikner (1958), *Professor of Biology Emeritus,* A.B., University of North Carolina at Chapel Hill; M.A., Ph.D., Harvard University

Harper Thomas Higgins, Jr., (1963), *Assistant Professor of Economics and Business Administration Emeritus,* B.S., Presbyterian College; M.Ed., University of North Carolina at Greensboro

Frances Bobbitt Hoyle (1956), *Associate Professor of Spanish Emeritus,* A.B., The Women's College of The University of North Carolina; M.A., New York University

Lois Worley Langhorst (1973), *Professor of Architecture Emeritus,* B.A., B.Arch., B.S. Arch. E., University of Oklahoma; M.Arch., Massachusetts Institute of Technology; M.F.A., Harvard University

Pierre Macy (1949), *Professor of French Emeritus,* Bachelor es lettres, University of Nancy, Licencie es lettres, University of Dijon; Agrege des lettres, Docteur es lettres, University of Paris

Eleanor Mallory Markham (1956), *Associate Professor of Mathematics Emeritus,* A.B., A.M., Duke University

John Henry Norman (1957), *Professor of Chemistry Emeritus,* A.B., Erskine College; M.A., University of North Carolina at Chapel Hill

Wilhelmena Craine Rollins (1971), *Assistant Professor of Human Development and Learning Emeritus,* B.S., Johnson C. Smith University; M.A., North Carolina College

Mozelle Spainhour Scherger (1957), *Librarian and Assistant Professor Emeritus,* B.S., Appalachian State Teachers College; B.S.L.S., University of North Carolina at Chapel Hill

Joseph Austin Slechta (1963), *Professor of French Emeritus,* B.A., New York University; M.A., Ph.D., Tulane University

Vera McGowan Smith (1967), *Professor of Nursing Emeritus,* B.S., Seton Hall University; M.S., University of North Carolina at Chapel Hill; R.N.

Elbert Daymond Turner, Jr., (1966), *Professor of Spanish Emeritus,* B.A., Davidson College; M.A., Ph.D., University of North Carolina at Chapel Hill

Robert Marsden Wallace (1963), *Professor of English Emeritus,* A.B., Wofford College; A.M., Ph.D., University of North Carolina at Chapel Hill

Edyth Farnham Winningham (1947), *Professor of Political Science Emeritus,* A.B., University of North Dakota; A.M., University of North Carolina at Chapel Hill

INDEX

—A—

Academic Affairs 11-12
Academic Calendar 3-4
Academic and Departmental Organizations 24-25
Academic Fraternities 25-26
Academic Grants and Contracts 20
Academic Honors 71
Academic Regulations 59-70
Academic Structure 9
Accounting, Department of 234-237
  B.S. in 234-236
  Course Descriptions 236-237
  Curriculum Outlines 235
Accreditation 9
Activities, Student 22-26
Adding a Course 61
Administration (Education) 309
  Course Descriptions 311-313
Admission
  Early 32
  Graduate 35-41
  Of Auditors 34
  Of Escrow Program Participants 34
  Of Foreign Applicants 31, 37-38
  Of Non-degree Students 35
  Of Senior Citizens 34-35
  Of Transfer Students 32-33
  Of Transient Students (Visitors) 35
  To Candidacy (Graduate) 75
  To the University 30
  Undergraduate 30-35
Advanced Placement Course Credit 32, 67
Advanced Standing 67
Advisers, Academic (Assignment of) 60
Advisory System, Creative Arts 112
Afro-American and African Studies 86-89, 345
Air Force ROTC 328-330, 349-350
Alcoholic Beverages 360
Alumni Association 21-22
Alumni Merit Scholarship 53
American Politics, Course Descriptions 196-197
American Studies 90-91, 345
Anthropology 217-219
  Course Descriptions 221-223
  Curriculum Outlines 218-219
  Major in 218
Apartments (See Residence Halls)
Appeal Procedures
  Academic Status 70
  Admission or Readmission 70
  Educational Records 9-10
  Handicapped Services 16
  Refunds 50
  Residence Status 46
  Traffic and Parking 49
Application Dates 29-30
Application Fee 48
Application Process, Financial Aid 51
Application for Degree 69
Architecture, College of 79-85
  Admission to 32
  Bachelor of 80
  Bachelor of Arts in 79-80
  Course Descriptions 83-85
  Curriculum Outlines 82-83
Army ROTC 331-332, 350
Art (See Creative Arts)
Arts and Sciences, College 86-228
Arts, Creative (Admission to) 33
Assessments, Special 48
Astronomy, Course Descriptions 191
Athletic Foundations 21
Athletics 20-21
Attendance 63
Auditors, Admission of 34, 36
  Registration of 62
Automobile, Registration of 16, 48-49
Awards 26

—B—

Baccalaureate Degrees 28
  Requirements for 71-74
Bachelor of Architecture 73, 80
Bachelor of Arts 72
Bachelor of Creative Arts 73, 111-112
Bachelor of Engineering Technology 74, 277-279
Bachelor of Science 72
Bachelor of Science in Engineering 73, 253-255
Bachelor of Science in Nursing 74, 334-337
Bailey, Robert Lee Professorship 356
BarclaysAmerican Corporation Professorships 356
Baseball 20
Basketball 20-21

Benefactions....356-357
Biology, Department of....92-101
B.A. in....92
B.S. in....92
Curriculum Outlines....93-95
Graduate Course Descriptions..97-101
Master of Science in....96
Undergraduate Course Descriptions....96-101
Bonnie E. Cone Merit Scholarship....54
Bookstore....17
Bus Service....16
Business Administration, College of....229-252
Business Administration, Department of....238-244
Admission to....32
B.A. in....238
Course Descriptions....240-244
Curriculum Outlines....240
Master of....40, 230-233
Business Affairs....15-17

—C—

Cafeterias....17
Calendar, Academic....3-4
Campus Programming....23
Carolina Journal....24
Cars, Registration of....48-49
Catalog Policies....60
Celanese Professorship....356
Certificates of Advanced Study....310-311
Certification, Teacher....69, 306-311
Chancellor's Club....22
Chancellor's List....71
Change of Degree or Major....63
Charlotte Transit System....16
Chemical Engineering....351-352
Chemistry, Department of....102-110
B.A. in....102
B.S. in....102
Curriculum Outlines....103-105
Graduate Course Descriptions....109-110
Honors Program....103
M.S. in....106
Undergraduate Course Descriptions....107-109
Child and Family Development....324-325
Children of Veterans....53
Chimney Rock Park Field Station....12
Classification of Undergraduates....65
Clinicals....346
Clubs....24-25
College Level Examination Program....67-68
Colvard Merit Scholarships....53
Commencement Marshals....71
Community Service....19-20
Comparative Politics and Area Studies, Course Descriptions....198-200
Comprehensive Examination, Graduate....75
Human Development and Learning..310
Computer Center....11-12
Computer Science
B.A. in....174-176
B.S. in....175
Course Descriptions....185-187
Curriculum Outlines....175-176
Cone Merit Scholarship....54
Cone University Center....12-13
Consortium, Charlotte Area Educational....345
Consortium Registration....62
Continued Enrollment, Requirements for....65-66
Continuing Education....17
Cooperative Education....346-347
Corrections (See Criminal Justice)
Correspondence Courses....69
Correspondence Directory....Inside Front Cover
Counseling and Guidance....325
Course Descriptions....326-327
Counseling Center....13-14
Course Level Requirements....71
Course Load....62-63
Course Requirements for Degree....72-75
Course Selection....78
Courses of Study....77, 344
Creative Arts, Department of....111-127
Admission to....32, 112
Bachelor of (Requirements for)....73
Course Descriptions....118-127
Curriculum Outlines....114-117
Review Procedures....112-113
Credit by Examination....48, 64, 69
Credits....63
Criminal Justice, Department of....128-133
B.S. in....128
Concentrations in....128-129
Graduate Course Descriptions....132-133
M.S. in....129-130

Undergraduate Course Descriptions 130-132
Cross Country 20
Cullen, Charles E. Professorship 356
Curriculum and Instruction (Supervision) 310-311
Course Descriptions 313

—D—

Dance (See Creative Arts)
Degree, Application for 69
Change of 63
Requirements 71-75
Degrees Offered 28-29
Dickson, Rush S. Professorship 356
Directory 362-397
Administrative Officers and Staff 366-369
Board of Trustees 365
Emeritus Faculty 397
Faculty 370-396
UNC Administration 362
UNC Board of Governors 364
Deli 17
Dentistry 352
Development 21-22
Dormitories (See Residence Halls)
Dropping a Course 61
Drug Abuse 360
Dual Undergraduate/Graduate Registration 61-62

—E—

Early Admission 32
Early Childhood Education 307-309
Earth Sciences
B.A. in 154-155
Course Descriptions 159-162
Ecological Reserve 12
Economics, Department of 245-252
Course Descriptions 249-252
Curriculum Outlines 247-248
Educational Administration, Certificate of Advanced Study in 311
Educational Leadership and Instruction, Department of 306-309
B.A. in 306-309
Certificate of Advanced Study in 310-311
Course Descriptions 311-318
Master's degree in 309-310
Elementary Education (See Early Childhood Education)
Certificate of Advanced Study in 311
Course Descriptions 314
Emergency Numbers . . . . . Inside Front Cover
Employment 14,52
Engineering, College of 253-299
Admission to 32
B.S. in 253-255
Continuing Studies in 258
Cooperative Education in 255
Course Descriptions 257-258
M.S. in 255-257
Engineering Analysis and Design, Department of 259-268
Curriculum Outlines 260-261
Graduate Course Descriptions . . . 264-268
Undergraduate Course Descriptions 261-267
Engineering Science, Mechanics and Materials, Department of 269-276
Curriculum Outlines 270
Graduate Course Descriptions 273-276
Undergraduate Course Descriptions 271-275
Engineering Technology, Department of 277-292
Admission to 33
B.E.T. Degree 277-279
Course Descriptions 286-292
Curriculum Outlines 280-286
Engineering, Urban and Environmental, Department of 293-299
Course Descriptions 295-299
Curriculum Outlines 294-295
English, Department of 134-142
B.A. in 134-135
Graduate Course Descriptions 138-142
M.A. in 135-136
Undergraduate Course Descriptions 136-141
English Language Training Institute 19,345
English Placement Examinations 78
Equal Opportunity 10
Escrow Program Participants, Admission of 34
Evening Courses 9
Examination, Comprehensive (Graduate) 75
Examination, Credit by 48, 64, 69
Exchange Programs 345-346
Expenses, Student 44
Experiential Learning Programs 346-347
Extension 17

—F—
Facilities and Services....11-26
Faculty....370-396
Fee Payment....44
Financial Aid....50-57
Financial Information....43-57
Firearms....360
Food Service....17
Foreign Applicants, Admission of
(Graduate)....37-38
(Undergraduate)....31
Foreign Language Option....72
Foreign Language Placement
Examination....78, 143
Foreign Languages, Department
of....143-153
Course Descriptions....146-153
Curriculum Outlines....144-145
Forest Resources....353
Former Students, Readmission of....33-34
Foundation of UNCC....22
Fraternities....24-25
French, Course Descriptions....147-149
Major in....147
Friends of UNCC....21

—G—
General Alumni Association....21-22
General Information....6
Geography and Earth Sciences,
Department of....154-162
B.A. in....154-155
Graduate Course Descriptions...156-162
M.A. in....155
Undergraduate Course
Descriptions....156-162
German
Graduate Course
Descriptions....150-151
Major in....149
Undergratuate Course
Descriptions....149-151
Goals Statement....7-8
Golf....20
Government, Student Body....22-23
Grade Changes....63
Grade Reports....63
Grades....64
Grading Policies....63
Graduate Admission....35-41
Graduate Assistantships....52
Graduate Degree Requirements....74-75
Graduate Degrees....29
Graduation Fee....48
Graduation with Honors....71
Graham, Frank Porter
Professorship....356
Grants, Athletic....21
Grants, Faculty....20
Grants, Student....52
Gymnasium....15

—H—
Handicapped Students....13,16
Health and Physical Education,
Department of....319-323
Course Descriptions....320-323
Health Education....319-321
Health Service....14-15
History, Department of....163-169
B.A. in....163
Graduate Course Descriptions...168-169
M.A. in....163-164
Undergraduate Course
Descriptions....165-169
History of the University....6
History of the University System....363
Honoraries....25-26
Honors, Academic....71
Honors and Awards....26
Honors, Graduation with....347
Honors in Modern Languages....143
Honors Program....347
In Chemistry....103
In Mathematics....174
Housing (See Residence Halls)
Housing, Cost of....47
Housing Deposit....48
Housing Refunds....50
Human Development and Learning,
College of....300-332
B.A. in....300, 306-309, 324-325
Certificate of Advanced
Study in....310-211
Course Descriptions....302-305
Health and Physical
Education....319-323
Master's Degree in....309-310
Human Services, Department of...324-327
B.A. in....324
Certificate of Advanced
Study in....325
Graduate Programs in....324-325
Master's Degree in....325
Undergratuate Programs in....324-325
Humanities, Course Descriptions....170

—I—
Incomplete, grade of....64

Infirmary (See Health Service)
Information, General 6
Institute, Urban 19-20
Inter-Institutional Registration 62, 348
Intermediate Education 307-309
International Campus Programming 18
International Student Exchange 346
International Student Services 18
International Studies, Center for 17-19, 348-349
International Studies, Concentration in 348-349
Internships 347
Intramural Sports 15

—J—

Journalism 353

—K—

Kerley, Artie Sue Professorship in Nursing 356

—L—

Late Registration 61
Late Registration Fee 48
Law 353
Law Enforcement (See Criminal Justice)
Leadership Development, Student 23
Learning Assistance Services 14
Learning Resources Center 12
Library 11
Library Science, Course Descriptions 305
Loans 51-52

—M—

Magazine, Alumni 21
Magazine, Literary 24
Major, Change of 63
Marshals, Commencement 71
Master of Arts, Admission to 38-39
English 38
History 38-39
Geography 38
Mathematics 39
Mathematics Education 39
Psychology 39
Master of Business Administration 230-233
Admission to 40
Master of Human Development and Learning 309-310
Admission to 40
Master of Science, Admission to 39-40
Biology 39
Chemistry 39-40
Criminal Justice 40
Engineering 41
Nursing 41
Master of Urban Administration 195-196
Admission to 41
Master's Degree, Second 70
Mathematics, Department of 171-187
Baccalaureate Degrees 171
Curriculum Outlines 172-176
Graduate Course Descriptions 179-185
Honors Program 174
Master's Degrees 176-177
Undergraduate Course Descriptions 178-182, 185-187
Mathematics Option 72
Mathematics Placement Examinations 78
Meal Plans 13, 17, 47
Media Board, Student 24
Medical Care 14-15
Medical Technology 353
Medicine 352
Minimum Hours, Graduate 75
Mission Statement 6-7
Motor Vehicle Registration Fee 48-49
Music (See Creative Arts)
Musical Organizations 24-25

—N—

NCNB Awards 357
New Student Fee 48
New York Deli 17
Newspaper, Student 24
Non-Degree Students, Admission of 35
Non-Matriculation, Graduate 36
Nursing, College of 333-344
Admission to 32
B.S. in 334-337
Course Descriptions 339-344
Curriculum Outlines 335-336
M.S. in 337-338
Pathways Option for R.N's 336-337

—O—

Optometry 353
Organizations 24-25
Out-of-State Students, Tuition and Fees for 47

—P—

Parking....16,48-49
Pass-No Credit Option....65
Patrons of Excellence....22
Pep Band....25
Pharmacy....353-354
Philosophy, Department of....188-190
Course Descriptions....188-190
Requirements for Major....188
Physical Education....319, 321-323
Physician....14-15
Physics, Department of....191-194
B.A. Degree in....191
B.S. Degree in....191
Course Descriptions....192-194
Placement Examinations....78
Placement Office....14
Police Services....15-16
Political Organizations....24-25
Political Science,
Department of....195-203
B.A. in....195
Course Descriptions....196-203
Post Baccalaureate Students....36
Practica....347
Pre-Dental Preparation....352
Pre-Medical Preparation....352
Privacy of Educational Records....9
Professional Education
Sequences....307-308
Professional Schools,
Preparation for....351-354
Professorships....356
Program Approval, Graduate....75
Program Board, University....23
Psychology, Department of....204-212
B.A. in....204
Curriculum Outlines....205
Graduate Course Descriptions....210-212
M.A. in....205-206
Undergraduate Course
Descriptions....207-212
Publications, Student....24

—Q—

Quality Point Ratio....64-65
Quality Point Requirements....71

—R—

Radio Station....20
Rathskeller....13, 17
Reading, Course Descriptions....314-315
Reading Education....309
Readmission After Suspension or
Termination....66-67
Readmission of Former Students....33-34
Readmission of Graduate Students....36
Records, Privacy of....9
Refunds....49-50
Registration....61-62
Regulations, Academic....59-70
Regulations, University....360
Religious Life....26
Religious Organizations....24-25
Religious Studies,
Department of....213-216
Requirements for Major....213
Course Descriptions....213-216
Renewal of Financial Aid....51
Repeating a Course....65
Research and Public Service....17-21
Research, Faculty....19-20
Residence Halls....13, 48, 50
Residence Requirements for
Degree....71, 74
Residency Status for
Tuition Payment....45-46
Responsibility, Student....60
Returned Check Policy....44
Review Procedures, Creative
Arts....112-113
Room and Board, Cost of....47
ROTC Programs....328-332, 349-350
Russian, Course Descriptions....151

—S—

Safety....15-16
Sanskrit Magazine....24
Scholarships....53-57
Second Baccalaureate Degree,
Admission to....33-34
Requirements for Major....69-70
Second Master's Degree....70
Secondary Education....308-309
Certificate of Advanced
Study in....311
Course Descriptions....315-316
Security....15-16
Senior Citizens, Admission of....34
Service Organizations....24-25
Services, University....11-22
Sixth year Programs....310-311
Snack Bar....17
Social and Behavioral Sciences,
Course Descriptions....216
Social Work....217, 220, 224-225, 354
Concentration in....220
Course Descriptions....224-225
Sociology and Anthropology,
Department of....217-227

Curriculum Outlines....218-221
Graduate Course Descriptions....223, 225-227
Requirements for Major....218-220
Undergratuate Course Descriptions....221-227
Soccer....20
Softball....21
Sororities....24-25
Spanish, Major in....151
Graduate Course Descriptions....153
Undergraduate Course Descriptions....151-153
Special Assessments....48
Special Education....310
Course Descriptions....316-318
Special Interest Organizations....24-25
Special Programs....345-354
Sports Clubs....24-25
Sports, Intramural....15
Stone, Charles H. Fund....356
Student Activities....22-26
Student Activities Fee....48
Student Affairs....12-15
Student Body Government....22-23
Student Broadcasting Association....24
Student Leadership Development....23
Student Media Board....24
Student Responsibility....60
Student Teaching....308-309
Study Abroad....18, 346
Summer Courses....9
Suspension, Readmission After....66-67

—T—

Teacher Certification....69, 306-311
Temporary Parking Permits....48
Tennis....20
Termination, Readmission After....66-67
Theatre (See Creative Arts)
Time Limit (Graduate)....75
Traffic Division....16
Transcripts of Records....65
Transfer Students, Admission of....32-33
Credit....67-69
Transient Students, Admission of....35, 36
Study....69
Transit System....16
Travel Abroad....18
Tuition and Fees....45-49

—U—

UNCC Foundation....22
Unclassified Students, Graduate....36
Undergraduate Degrees....28
University Center....12-13
University Forum Council....26
University Program Board....23
University Regulations....360
Urban Administration, Master of....195-196
Urban and Environmental Engineering, Department of....293-299
Course Descriptions....295-299
Curriculum Outlines....294-295
Urban Institute....19-20

—V—

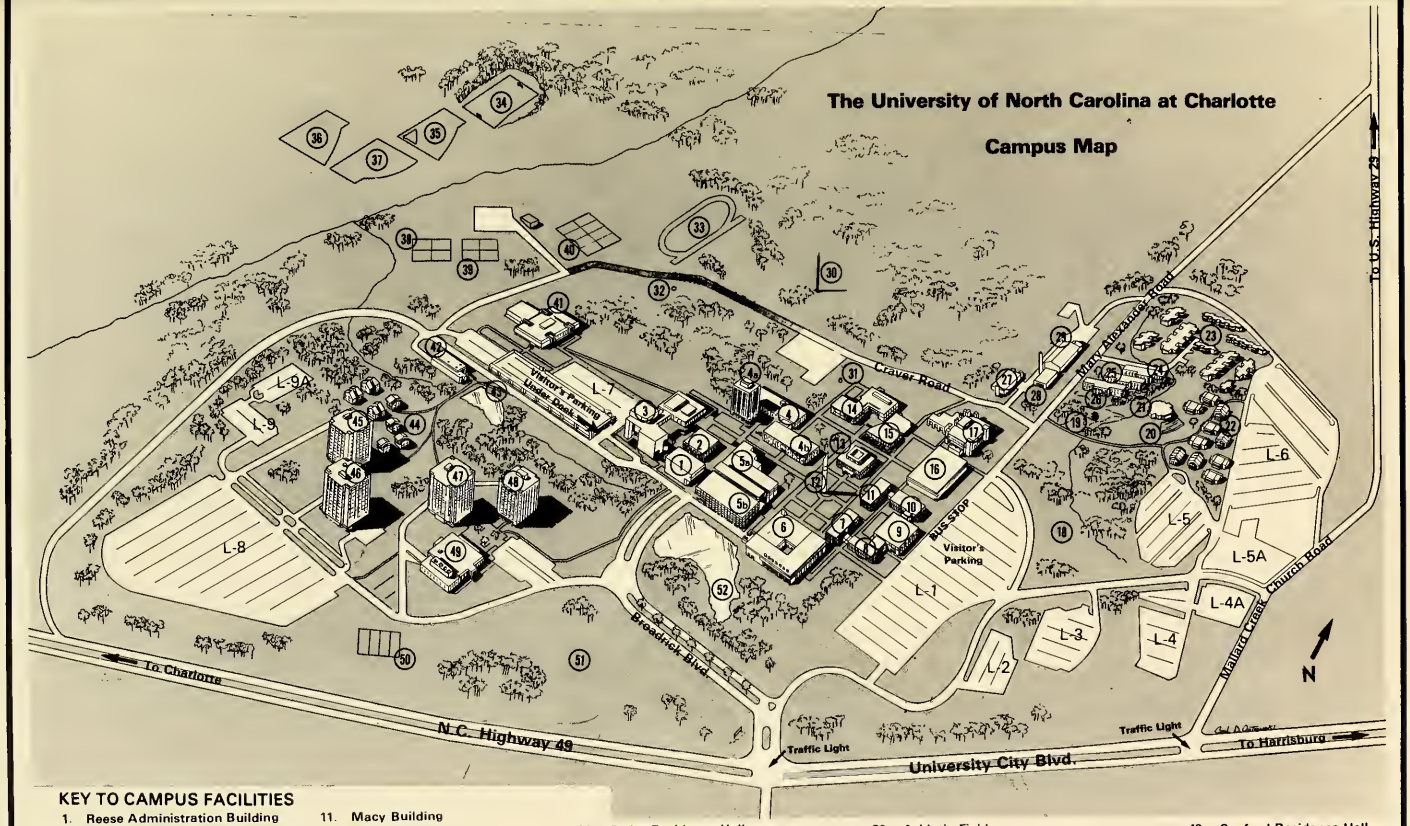
Vending Machines....17
Venture Program....350
Veterans Benefits....53
Veterans, Children of....53
Veterinary Medicine....354
Visiting Students, Admission of....35-36
Vocationally Handicapped, Education for....53
Volleyball....21

—W—

Weapons....360
WFAE-FM....20
Withdrawal....61,64
Women's Studies....350-351

—Y—

Yearbook....24



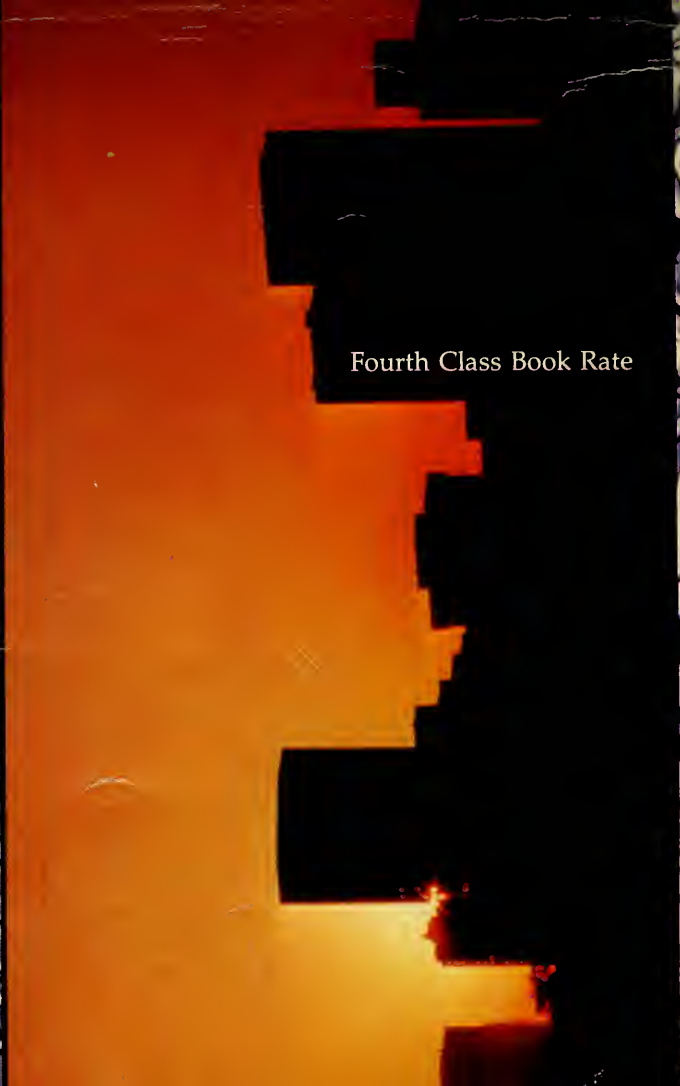
KEY TO CAMPUS FACILITIES

1. Reese Administration Building
2. A.K. King Building
3. Cone University Canter
4. Atkins Library
4a. Delton Library Towar
4b. Atkins Building
5a. Colvard Building North
5b. Colvard Building South
6. Rowa Building
7. Winningham Building
8. Geringer Building
9. Danny Building
10. Bernard Building
11. Macy Building
12. Belk Tower
13. W.A. Kennedy Building
14. Smith Building
15. Bookstore Building
16. Friday Building
17. McEniry Building
18. Van Landingham Glan
19. Susie Harwood Garden
20. Amphithaater
21. Cafateria/Activitias Building
22. Phasa II Apartments (H-Q)
23. Phase III Apartments (R-Z)
24. Cedar Residance Hell
25. Hickory Residance Hall
26. Sycamora Residance Hell
27. Physical Plant Building
28. Steam Plent
29. Purchasing/Recaiving Warehouse
30. WFAE Redio Towar
31. Observatory
32. WFAE Satellite Dish
33. Athletic Track
34. Soccer Field
35. Softball Field
36. Athletic Field
37. Athletic Field
38. Tennis Courts
39. Tennis Courts
40. Tannis Courts
41. Health & Physical Education Building
42. Brocker Heelth Canter
43. Davis Memorial Perk
44. Hunt Villega (A-G)
45. Holshouser Residence Hell
46. Scott Rasidance Hall
47. Moore Rasidence Hell
48. Senford Residance Hell
49. Residence Hell Cafeteria
50. Tennis Courts
51. Intramurel Fields
52. Hechanbleiknar Leke

UNIVERSITY PARKING LOTS

L-1	L-4A	L-7
L-2	L-5	L-8
L-3	L-5A	L-9
L-4	L-6	L-9A

UNCC
UNCC Station
Charlotte, N.C.
28223


Fourth Class Book Rate